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# Crowd and Community: Organizations and Occupations in Crowdsourced Work

Schwartz, David

Princeton, NJ : Princeton University

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# CROWD AND COMMUNITY:

# ORGANIZATIONS AND OCCUPATIONS IN CROWDSOURCED WORK

**David B. Schwartz**

**A DISSERTATION**

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## Abstract

Over the past two decades, firms have relied increasingly upon external workers rather than employees for their core production tasks. More recently, firms in the high-technology and software industries have come to rely on crowdsourced workers, who are formally external to firms and organized via the Internet. This project investigates the management of crowdsourced work by firms, the experiences of crowdsourced workers themselves, and the implications for organizational boundaries and occupational identity within and outside of firms. Three motivating questions are central to the research presented here. First, how does crowdsourced work remain socially embedded despite pressures toward atomization? Second, in the absence of employment relationships, how do organizations approach the socialization of crowdsourced workers as variously organizational and occupational members. Third, how is control established among non-employees when work is completed online? To answer these questions, this project relies on organizational ethnography, practiced online and offline for two years, and interviews with crowdsourced workers and employees of three software firms. These firms were similar in their reliance on crowdsourced work, yet distinct in size, product, skill requirements, and models of incorporating external workers.

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# Chapter 1: An Introduction to Crowdsourced Work

> "Not being able to communicate with Game Central over things that at a normal job would be simple [. . .] Game Central selects what they want to consider and it's entirely up to them. We get no feedback in the process." - Susan, creative freelancer, Game Central

> "I feel a part of both the community and the company and I'm trying to do the same for the [workers], to make them feel a part of the company." - Jerry, community manager, CrowdInc

> "Now I feel like I'm inside of OpenTech. For example, if I know that X project is going to be important in the future, it's confidential now, then I can prepare with the timing of everything." - Chris, software code contributor, OpenTech

As the above comments suggest, new patterns are emerging in the social organization of work. A growing portion of work is now completed in the absence of employment relationships between workers and firms. According to conservative estimates of alternative work arrangements, 15.8 percent of working Americans are presently engaged in temporary help, on-call, contract, or freelance work, an increase of roughly 10 percent in as many years (Katz and Krueger, 2016). Firms have embraced these changes, as *Harvard Business Review* finds "69% of respondents say using external workers allows their organization to meet market demands and maintain efficiency that otherwise would be difficult" (HBR, 2015). As companies increasingly rely on an external workforce, it is no longer safe to assume an employment relationship exists when work is coordinated by organizations. Instead, a growing number of individuals like Susan, Jerry, and Chris, work for firms as members of online communities.

Alongside the rise in alternative work arrangements are technologically driven changes to familiar organizational forms. For instance, Davis (2016) observes a large-scale shift away from traditional corporate organizing, with the coordination functions of many organizations now accomplished by computers via the Internet and software-as-a-service (SaaS). Information and communications technology (ICT) now plays a central role in workplace socialization and task completion, as demonstrated by Turco (2016) in her study of a non-hierarchical firm. If the late 20th century saw the rise of management by markets (Davis, 2009), our current period increasingly relies on management by software as well.

These technological developments present opportunities for flexibility and control, as more companies contract for peripheral services with new monitoring capabilities provided by the Internet. Weil (2014) summarizes a broader systemic shift in *Fissured Workplace*, writing, "… [L]ead businesses are allowed to have it both ways. Companies can embrace and institute standards and exert enormous control over the activities of subsidiary bodies. But they can also eschew any responsibility for the consequences of that control." The new reality of workplace control without accountability is both cause and effect of recent advances in the information and communications technology used to organize work.

The dual transformations away from employment relationships and toward the increased control function of software in firms dovetail in the context of crowdsourced work. Indeed, the late-twentieth century predictions of work as Internet-mediated, distributed, and individualized are coming to fruition. Sundararajan (2016) draws our

attention to the growth of crowdsourced work, or crowd-based capitalism, and the declining significance of firms in the global economy. Some of the most visible and highest valued firms now manage or rely upon platforms to coordinate work among individuals outside of employment relationships (Boudreau and Lakhani, 2013). This new phenomenon has seen limited attention within sociology, and broader scholarly attention is thus far focused on consumer market impact (Bardhi and Eckhardt, 2012; Zervas, Prosperio, and Byers, 2016), legal standing of workers (Lobel, 2016), and labor market dynamics (Hall and Krueger, 2017; Torpey and Hogan, 2016). Thus, sociologists have yet to confront what it means for crowdsourced workers like Susan, Jerry, and Chris to "feel like [they're] inside" of firms, to "feel a part of both the community and the company," and to labor outside of "normal job[s]."

Enabled by the rise of these platforms, bureaucratic firms are increasingly engaged in shared production and knowledge creation with communities of workers, leading O'Mahony and Lakhani (2011) to suggest that firms now live in the shadow of communities. As a result, they suggest "methods, approaches, and vocabularies need to be enriched in order to better understand and explain emerging organizing phenomena that may not depend upon a shared place or context to support production" (O'Mahony and Lakhani, 2011:32). In particular, questions surrounding firms' coordination and control of communities, the development of organizational identities, and the role of occupations remain largely unanswered in research on firms and online communities. Do firms expand organizational membership to include crowdsourced workers, and if so, how? How is commitment motivated among non-employees, who receive limited

investment from firms? Where are the sources of occupational influence for those learning to work outside of formal organizations? To answer these questions, I undertook ethnographic study of three firms and their respective communities, drawing on theories of organizations, occupations, and science and technology to understand the social organization of crowdsourced work.

**What Is Crowdsourced Work?**

Given the current pace of innovation in alternative work arrangements, it is particularly important to outline the concept of crowdsourced work as it is used in this dissertation. Firms increasingly rely upon non-employee workers who might be formally contracted as individual consultants, employees of a third-party firm or staffing agency, or individuals completing piecework or short-term projects via the Internet. The third arrangement, a phenomenon that I refer to as *crowdsourced work,* allows companies of all sizes to expand workforce capability and strategic innovative potential without the accompanying rights and benefits provided by employment status or the transaction costs associated with independent contractors or temporary help. Crowdsourced work refers to paid or unpaid labor in which individuals with various skills complete tasks for firms, where the goods or services are digitally produced or exchanged. In the case of knowledge-intensive work, such as data science and advertising, there is evidence that reliance on crowd-based problem solving leads to productive innovation for firms (Boudreau and Lakhani, 2013; Lakhani, Lifshitz-Assaf, and Tushman, 2013).

Efforts to estimate the extent of crowdsourced work, both in the United States and abroad, yield a patchwork of compelling, yet inconclusive findings. The sourcing of quality workforce data suffers from limited support by official statistical agencies, as well as properties of the working population that make it hard to reach. For instance, the U.S. Bureau of Labor Statistics is woefully late in re-deploying their contingent worker supplement after the last survey in 2005. To fill the void, private foundations and researchers have developed their own instruments for gauging the prevalence of crowdsourced work. In the United States, Katz and Krueger (2016) used a nationally-representative sample to find 0.5 percent of the working population engaged in crowdsourced work, with alternative work arrangements increasing 50 percent overall between 2005 and 2015. Similarly, the JPMorgan Chase Institute implemented a longitudinal study, finding that one percent of working-age adults were engaged in crowdsourced work, on average, within a given month. 4.2 percent of adults, or 10.3 million Americans, relied on these platforms for income within the three-year period of study (Farrell and Greig, 2016).

However, contrasting data can be found in official payroll records, which suggest there has been little change in the percent of working Americans listed on employers' payrolls over the past decade. Further still, according to employment numbers provided by the U.S. Bureau of Labor Statistics, the share of Americans identifying as "self-employed" has trended downward over the past twenty years, from a high of 12.4 percent in 1994 to 10.1 percent in 2015 (Hipple and Hammond, 2016). As a result, it may be the case that crowdsourced work arrangements are absorbing new entrants to the labor

market and that these individuals do not consider themselves self-employed, but rather dependent on firms in ways not reflected by official statistics.

Internationally, Huws, Spencer, and Joyce (2016) commissioned an online survey to estimate crowdsourced work throughout Europe. They find some 5 to 9 percent of the online population engaged in crowdsourced work, with a small percentage relying on that work as a significant income stream. The typology of work covered in their survey, including high-skilled creative tasks, low-skill "click work" or "microtasks," manual service labor coordinated through an online platform, and driving or delivery services like Uber, is not perfectly congruous with my definition of crowdsourced work, but instead encompasses something closer to "on-demand work" as defined by Alkhatib, Bernstein, and Levi (2017). In sum, a conservative estimate would suggest crowdsourced work accounts for around one percent of paid work in the U.S. and Europe, with a minimal, yet growing subset of workers reliant on this income to support their households. Although a rough picture of individual-level participation is emerging, we still lack adequate statistics on the firm-level adoption of crowdsourcing.

Finally, my conceptualization of crowdsourced work should not be confused with Internet-mediated labor markets or distributed work more broadly. Much of the literature on distributed work focuses on questions of organizing when employees span geographic, cultural, and temporal boundaries (Hinds and Kiesler, 2002; Gibson and Cohen, 2003; MacDuffie, 2007; Hinds, Liu, Lyon, 2011), yet crowdsourced work deals exclusively with non-employees or external workers. Additionally, where bulletin boards, hiring agencies, and word-of-mouth connections once mediated the allocation of self-employed

labor, Internet-based intermediaries have emerged to connect buyers and sellers. Industries as varied as home improvement, design and photography, and law now include self-employed individuals who rely upon online marketplaces for identifying jobs (Sundararajan, 2016). In these cases, firms design, build, and maintain online platforms that support local and remote labor markets, either by focusing on one type of service or by catering to multiple industry sectors. These platforms demand sociological study of the labor markets they support, yet I restrict my focus to crowdsourced work as defined above.

**Why Study Crowdsourced Work?**

What makes crowdsourced work different from any other work that is mediated without an employment contract between firm and worker? A body of sociological research exists on both high-skilled (Fraser and Gold, 2001; Barley and Kunda, 2006; O'Mahony and Bechky, 2006) and low-skilled (Nollen, 1996; Kalleberg, 2000; Kalleberg, 2009) contingent employment, much of it written when Internet-mediation warranted only passing mention in accounts of contingent work. Given the considerable research on contingency, why should organizational sociologists care that non-employee workers are increasingly connected to firms through reliance on information and communications technology? If anything, a rich literature on distributed work (Hinds and Kiesler, 2002; Gibson and Cohen, 2003; MacDuffie, 2007; Hinds, Liu, Lyon, 2011), coupled with existing accounts of contingent employment, should be enough to cover the gap introduced by the rise of work that is both distributed and contingent. These

literatures no doubt provide a robust foundation for investigating new forms of work, yet the growing utilization of crowdsourced work by firms poses unanswered questions about the relationship between technology, occupations, and organizational boundaries in the twenty-first-century.

Scholars are presently engaged in debates about the categorization of crowdsourced and community-based forms of organization. On the one hand are those, such as Benkler (2017), who view commons-based peer production, or collaborative communities (Heckscher 2006), as forms of organizing production distinct from markets, hierarchies and networks. As peer production, with its diverse motivations and decentralized problem solving, begins to harness the low transaction cost model of online labor markets, where will hierarchical firms find a competitive advantage over alternative forms? This perspective predicts existential threat to hierarchical organizing.

Powell (2016), on the other hand, is skeptical of the organizational transformations foretold by observers of crowd-based production. Although outlying cases of peer production exist, firms' utilization of crowdsourced work appears to many a modest iteration on independent contracting, with power entrenched at the top of hierarchical firms, rather than an invention of a new organizational form. Somewhere in between these two poles are business scholars, such as Lakhani, Lifshitz-Assaf, and Tushman (2013), who identify open innovation, reliant on crowd-based production, as part of dynamic strategies built upon a combination of fluid and rigid firm boundaries. Regardless of their predictions on the future of hierarchical and community-based

organizing, each of these scholars calls for additional research on the day-to-day work experiences that constitute firms' integration of crowdsourced work.

To move the debate forward, I conducted an ethnographic study of high-skilled and low-skilled crowdsourcing by firms, with an emphasis on the work experience itself. The benefits of this approach are twofold. First, the topic is an occasion to better understand technology in contemporary work (Orlikowski and Scott, 2008). In the simplest sense, crowdsourced work is technologically mediated because firms rely on the Internet for distributing tasks to non-employee workers. Some have called this process *disintermediation* because of the deep reductions in transaction and search costs enabled by the Internet, making it cheap to contract out job tasks and obviating the need for firms' internal labor markets or third-party staffing agencies (Katz and Krueger 2016). However, the use of the Internet as a coordinating technology by organizations is still poorly understood, leaving assumptions of disintermediation largely unexplored. The same is true of scholarship on occupations, despite the fact that the Internet makes widely available occupational knowledge previously confined to firms and institutions of higher learning. As a corrective, Part I explores the role of occupational community in the coordination and learning once achieved within organizations, through labor market intermediaries, and in professional schools.

Second, as the debates around new organizational forms make clear, it remains to be shown if and how crowdsourced work represents a new frontier of organizing. Perhaps the era of crowdsourced work will depend on organizing around occupations (Barley and Kunda, 2006; Anteby, Chan, and DiBenigno, 2016) as communities of practice (Wenger,

1998; Kellogg, Orlikowski, and Yates, 2006), or on commons-based peer production (Benkler, 2017), rather than bureaucratic firms. Even if, as Powell (2016) suggests, crowdsourced work is more of a complement to hierarchical organizing than a new form in its own right, this innovation requires exploration from the perspective of crowdsourced workers and employees of firms engaged at its earliest stages. This initial phase of organizing crowdsourcing work will surely set the stage for later developments, as questions that remain open today are slowly closed, with their solutions ossifying into the taken-for-granted knowledge of contemporary organizing. In Part II, I show how firms motivate commitment, standardize the work experience, and cultivate organizational culture, identity, and teamwork when a workforce is composed of both employees and crowdsourced workers. Through comparison of socialization and control in two settings, I speak to the nature of organizational and occupational boundaries in the near future of work.

**Crowdsourced Work in Historical Perspective**

Commentary and scholarship on crowdsourced work often stresses novelty, with only passing mention of antecedents in the social organization of work (Harris and Krueger, 2015; O'Connor, 2015). As early as 2006, an article in *Wired* magazine introduced the term *crowdsourcing* to describe a situation in which "[h]obbyists, part-timers, and dabblers suddenly have a market for their efforts, as smart companies in industries as disparate as pharmaceuticals and television discover ways to tap the latent talent of the crowd" (Howe, 2006). Remarking on mainstream response to this apparent

novelty, Boudreau and Lakhani note, "pushing problems out to a vast group of strangers seems risky and even unnatural, particularly to organizations built on internal innovation" (2013:1). The perception is often a "sudden" or "unnatural" change in organizing beyond the walls of the firm, but crowdsourced work has deep roots in past forms of organizing.

The earliest forms resembling crowdsourced work are those of piecework and putting-out in the pre-modern and early-industrial periods. Alkhatib, Bernstein, and Levi (2017) identify George Biddell Airy's astronomical computations as potentially the first case of large-scale and distributed piecework. In the nineteenth century, celestial navigation relied on tables, the values of which were derived from thousands of individual calculations executed by individuals known as *computers*. Airy compartmentalized the work tasks and distributed them for young men with basic knowledge of arithmetic to complete. As piecework, the compensation structure was based on individual output sent through the mail, not unlike the contemporary microtasks common on Amazon's Mechanical Turk platform. Similarly, Braudel's (1992) discussion of the Florentine putting-out system shows a system of pseudo-artisanal piecework in the countryside and Wallerstein (1980) focuses on the regulatory obfuscation of merchants who relied on rural homeworkers to circumvent the guild-based authority structure of the urban economy. In the roots of crowdsourcing, the work of the home was brought into the public sphere.

Relatedly, contests have long been used by organizations to enlist the help of large groups when problems prove particularly vexing or costly. An example comes from Boudreau and Lakhani (2013), who tell the story of The Longitude Prize, an eighteenth

century contest for oceanic navigation. The British Parliament, hoping to establish a more reliable method for determining longitude at sea, hosted a competition in 1714. Non-experts of various occupations, as well as leading thinkers, such as Isaac Newton and Giovanni Domenico Cassini, submitted solutions, with Parliament amassing some 100 contributions. Foreshadowing NASA's reliance on citizen scientists, the winning contribution did not come from expert seafarers or academics, but instead from John Harrison, a rural carpenter and clockmaker who developed a reliable chronometer.

Further, in the American context, Butrick (1952) draws our attention to the often-overlooked inside contracting system that prevailed in U.S. manufacturing firms during the nineteenth century. Under this model, plant owners erected organizational boundaries between capital and labor. Machinery, raw materials, and production space were provided by owners to operating organizations that would then hire workers, often on the basis of piece-rate compensation. Owners did little to coordinate work within their plants, relying instead on interorganizational relations with inside contractors. Likewise, rather than a mere historical curiosity on the road to industrialization (Braudel, 1992), the putting-out system lingered throughout the nineteenth and into the twentieth century across several industries. Historical and legal scholarship highlights the persistence of putting-out work as a subversive tactic, particularly with regard to female homeworkers and subcontractors as arrangements to undermine labor organizing and circumvent workplace regulations (Rubery and Wilkinson, 1981; Boris and Daniels, 1989). The practice became a central issue in the Fair Labor Standards Act of 1938, which ultimately gave the Department of

Labor power to regulate homework practices pursuant to enforcement of the Federal minimum wage (Finkin, 2016).

Given this historical context, why has crowdsourced work expanded in the twenty-first century? Around the new millennium, organizational scholars and economic sociologists noted countervailing trends in the U.S. economy. On the one hand, employment was transitioning from a secure, career-long relationship with one firm to a pattern of jobs linked across multiple firms. The rise of itinerant experts and growing use of part-time, temporary help, and contract workers (Kalleberg, 2000) evidenced this shift, but it is also discernible in the form of increasingly varied employment histories (Pedulla, 2016). This period is widely regarded as one in which the economic and social risks of an advanced capitalist society shifted from firms, as employers of record, to workers, as independent contractors or free agents moving between firms (Hacker, 2006). Despite widespread dislocations at the bursting of the Dot-com bubble, this period was framed by many as an empowering transition toward entrepreneurial freedom among workers (Neff, 2012).

On the other hand, firms were emphasizing the importance of knowledge-based employment to their core competencies, offering increased autonomy to cross-functional teams and encouraging knowledge-based skills training for their employees (DiMaggio, 2001). The pattern of project-based collaboration within firms (Heckscher, 2006) came to characterize entire industries as well, wherein some interorganizational relationships relied on network mechanisms of reciprocity rather than market transaction or bureaucratic integration (Powell, 1990; Uzzi, 1997). Thus, transactional relationships

between firms and workers increased alongside renewed interest in the strategic benefits of employment contracts and cross-functional collaboration among knowledge workers within firms (Powell, 2001). These concurrent observations about the changing nature of work are united in their focus on the changing boundaries of the firm, particularly with regard to employment and supplier relationships. However, the "boundary decisions" of vertical and horizontal integration that engaged scholars and business leaders in the postwar period (Williamson, 1975; 1985) were increasingly decisions of collaborative networks, outsourcing of services through software, and staffing on a permanent or temporary basis.

The dual trends of rising contingency and increasingly autonomous project work around knowledge-intensive tasks are complementary and continue to the present, but now depend on the Internet as a tool for collaboration between firms and communities. Understanding these phenomena not only helps place crowdsourced work in the landscape of contemporary work relationships, but also signals the need for a revised look at organizational and occupational boundaries. Roughly two decades past the widespread interest in new organizational forms and alternative work arrangements, the present study considers crowdsourcing as a work experience in which non-employee workers and employees of firms construct, navigate, and contest occupational and organizational boundaries. In the following section, I briefly summarize the extant literature on organizational boundaries before reviewing scholarship on occupational community.

## Literature Review

### *Theorizing the Boundaries of the Firm*

Motivated by the rise of temporary work, crowdsourced work, open source projects, and open innovation, organizational scholars have focused renewed attention on understanding the relationship between firms and their environments. Alternative work arrangements inspire thinking on "problem-driven" boundary decisions related to power, competence, and identity within and around firms rather than efficiency concerns (Santos and Eisenhardt, 2005). However, we lack a compelling account of how external workers and employees navigate organizational boundaries in the context of their day-to-day work. An investigation of crowdsourced work offers the opportunity to study boundary construction as it emerges from work practice rather than managerial fiat.

The foundational work for conceptualizing firm boundaries comes from the field of economics, with the transaction cost approach introduced by Coase (1937) and refined by Williamson (1975, 1985). In this approach, a firm's leadership makes boundary decisions depending on the relative costs of internal and external transaction, where incomplete contracts and opportunism threaten exchange with parties external to the firm. Efficiency considerations are the exclusive drivers of boundary decisions in this view, where the choice could be between employment and temporary contracting of workers in a staffing scenario. In the view of transaction cost economics, one sees markets and hierarchies as two ideal types of economic organization, with exceptions to these predominating modes scattered along a continuum from impersonal transaction to vertical integration (Williamson, 1985).

Although the transaction cost view is a useful starting point, the reality of economic organization, whether viewed historically or at present, demands a more nuanced model of exchange, particularly one that accounts for relationships based on norms of reciprocity. Writing in response to the transaction cost view, Powell (1990) posits the network as a form of economic organization distinct from markets and hierarchies, with unique problems of control and organizational practice (Powell et al., 1996). Within networks, firms are thought to blur boundaries through reciprocal communication, interdependent resources, and horizontal exchange between two or more parties. These networks are often place-based and built upon embedded bonds of trust, as in Uzzi's (1997) depiction of the New York City garment trade or Saxenian's (1996) account of regional innovation in Silicon Valley.

Taken together, Powell (1990) and Williamson (1975, 1985) provide the foundation for understanding relationships between communities, external workers, and organizations, but subsequent accounts address these contexts directly. The rise of alternative work arrangements has led scholars to address the identity dimension of organizational boundaries, focusing on organizational membership and occupational affiliation (Santos and Eisenhardt, 2005). Based on their study of elite contracting, Barley and Kunda (2006) theorize the *matrix economy* as an economy-wide transformation in organizing along the lines of project-based work. In such a system, occupations rather than organizations act as the primary work affiliation, structuring the work experience and offering sources of identification across organizational boundaries in the same way that matrix firms practice cross-functional organization.

In a different vein, Benkler (2002, 2006), drawing on open-source projects including Linux and Wikipedia, offers a theory of peer production apart formal organizations. Contrary to firm-based production, Benkler (2006) shows that commons-based projects succeed through reliance on the open participation of variously motivated, self-directed workers who mobilize a diverse body of human creativity. Management of boundaries in these novel forms has engaged scholars of macro organizational behavior (Ferraro and O'Mahony, 2012; Chen and O'Mahony, 2009), who document the emergence of boundary governance mechanisms in open-source projects, where tensions surround the integration of public and private knowledge. Each of these approaches describes an ecosystem, meta-organization (Gulati, Puranam, Tushman, 2012), or network populated by some mixture of firms, markets, occupations, communities, and individuals.

Further, the integration of crowdsourced work into firms has led organizational design scholars to study the new boundaries of employment, which deviate sharply from the modes of control, role definitions, and incentives found in bureaucratic organizations (Gulati, Puranam, and Tushman, 2012). Past theories of organizational design start from the assumption that firms maintain authority relationships on the basis of employment contracts with workers. This employment-based authority gives firms the power to shape the work experience through incentivizing certain workplace behaviors and leaving others to the discretion of workers (Simon, 1951). With the rise of contingent work beginning in the 1980s, firms have developed strategies for managing hybrid teams of external workers and employees, often relying on intermediary organizations, such as

staffing services and temporary help agencies, which provide workers with certain benefits of employment to supplement their tenuous relationships with client firms (Barley and Kunda, 2006). In the context of crowdsourced work, Kornberger (2016) surveys existing distributed innovation systems and identifies three mechanisms for job design, including interfaces, participatory architecture, and evaluative criteria, through which the "visible hand" of managers in firms shapes the experience of external workers through software.

Those who study innovation are also interested in boundary-spanning relationships between external communities of workers and hierarchical firms (Boudreau and Lakhani, 2013). Research focuses on the relationship between strategic innovation and in-house R&D, on the one hand, and communities of eager participants, structured in various organizational forms, on the other. Chesborough (2006) and von Hippel (2005) provide the earliest accounts of distributed innovation partnerships, wherein firms look toward end users in their search for new ideas. While this scholarship mostly overlooks the workplace reality of firms' expanded search, it is complemented by more recent efforts, such as Lifshitz-Assaf's (2017) study of professional identity in the context of open-innovation projects at NASA. Her observation of boundary spanning, from the lay community to R&D experts, demonstrates not only significant pushback from experts who refuse to reshape their identity as problem solvers, but also eager acceptance from those who refashion themselves as solution seekers within the organization. As Lifshitz-Assaf's (2017) work makes clear, studying crowdsourced work requires attention to the interrelationship between organizational and occupational boundaries.

As has been shown, organizational scholars have studied the nature of firm boundaries, moving beyond the straightforward dichotomy of market and hierarchy and the crisp boundaries that it assumes. In these sociological approaches, decisions surrounding firm boundaries can be highly contested, embedded in social relations, and perhaps governed less by rational decision-making than a mimetic process of institutionalization. However, once settled, boundaries are often assumed to be self-evident to those inside and outside firms, with boundary navigation overlooked or viewed as unproblematic (Barley and Kunda, 2001). With the exception of unsettled periods, as when firms merge or acquire others, boundaries are treated as part of the taken-for-granted knowledge of the firm and its environment.

Limited engagement with the process of organizational boundary construction is true even in accounts of cross-boundary organizing or open-source projects. In these alternative forms, boundaries are thought to be more porous or altogether open, yet most researchers neglect the process by which boundaries are constructed and maintained (Ferraro and O'Mahony, 2012). Important exceptions to this tendency can be seen in Vallas' (2003) account of symbolic boundary work in factories implementing automation technology, as well as Azoulay, Repenning, and Zuckerman's (2010) research on embeddedness failure in relationships between contract research organizations and pharmaceutical companies. In the latter case, managers misdiagnosed the incompatibility in commitments and work process between their firm and contractors, leading to contested and failed linkages across organizational boundaries.

The extant literature on firm boundaries would benefit from greater attention to boundary work in the style of Ferraro and O'Mahony (2012), Lifshitz-Assaf (2017), and scholars of science and technology (Gieryn, 1983; Star and Griesemer, 1989; Kellogg, Orlikowski, and Yates, 2006). It is increasingly clear that organizational boundaries are sociotechnical constructs (Orlikowski and Scott, 2008). Appreciation of this fact came alongside the shift toward an expanded role for information and communication technology (ICT) in the workplace, a phenomenon that has seen considerable study in the literature on distributed work (Hinds and Kiesler, 2002; Gibson and Cohen, 2003; MacDuffie, 2007; Hinds, Liu, Lyon, 2011). Focusing on the processes of boundary navigation, STS scholars deal explicitly with the technological artifacts used in collaboration across occupations and organizations, with special attention to contestation around meanings and processes native to disparate groups.

Research on the role of technological artifacts in the relationship between occupational groups and organizations produced the theory of *boundary objects* (Star and Griesemer, 1989) and subsequent attention to organizational and occupational boundaries using the tools of science and technology studies (Galison, 1997; Kellogg, Orlikowski, and Yates, 2006; Timmermans and Leiter, 2000; Bechky, 2003; O'Mahony and Bechky, 2008). Inspired by earlier work in STS by Gieryn (1983) on the flexibility of boundaries around scientific practice, Star and Griesemer (1989) study the use of *boundary objects* in the context of Berkeley's zoological research and preservation efforts. Boundary objects are tools that enable collaboration across social worlds because they are rigid enough for

individualized use within a group, yet flexible enough to withstand transfer between groups.

Likewise, drawing on Galison's (1997) concept of *trading zones*, or localized spaces of temporary, cross-disciplinary collaboration, Kellogg, Orlikowski, and Yates (2006) explore boundary traversal in a marketing firm, where cross-functional work requires the use of ICTs to make work visible and legible to members of other occupations within the firm. The literature on boundaries offers practices (boundary work), spaces (trading zones), organizations (boundary organizations), and artifacts (boundary objects) that matter for productive collaboration across some boundary, be it occupational, organizational, or ideological. Each concept is valuable in understanding the integration of communities and firms in the context of crowdsourced work. But what exactly are the communities I've referenced and why might they matter for the social organization of crowdsourced work? I now turn to the literature on occupational community, which deserves renewed attention given the turn away from employment.

*Occupational Community*

Recent discussions of alternative work arrangements come alongside renewed attention to the role of occupations in structuring work within and outside of organizations. Studies of occupations have long focused on the organizational setting as stage for inter- and intra-occupational action. With the notable exception of many professionals throughout the twentieth century, most occupational work was (and continues to be) conducted under the umbrella of an employment relationship between firm and occupational member. However, with the erosion of employment security in

many industries, individuals may be more reliant on occupational institutions for standardization of work processes, guidance in career trajectories, and collective identity, albeit without the traditional mechanisms of occupational closure (Barley and Kunda, 2006). However, crowdsourced and other alternative work arrangements developed in advance of clear occupational boundaries or accepted practices surrounding organizational relationships, work tasks, or training (Katz and Krueger, 2016). As a result, crowdsourced workers may be engaged in tasks that fall under the purview of some established occupational group, but that occur in apparent absence of conventional occupational affiliations. Revisiting the concept of occupational community is thus warranted given recent trends in the social organization of work.

Following foundational work by Becker and Carper (1956), Lipset, Trow, and Coleman (1956), and Goode (1957) on occupational and professional identity, the first sociologist to integrate the study of community and occupation is Horobin (1957), who studies the fishing industry in Hull, U.K. What begins as an investigation of the urban ecology in Hull, including the relationship between workers' socioeconomic status, household location, and physical work site, morphs into a quite different account with the fishermen's community at the center of the study. Unable to explain the fishermen's habitation at the docks using the established tools of urban ecology, the author explains that occupational members choose to live closely in order to live amongst their occupation-based community.

Horobin's (1957) connection between work characteristics and non-work behavior sets the account apart from earlier studies in urban sociology, such as Cressey's (1932)

*Taxi-Dance Hall*, which deal with the social worlds of local commerce. In Horobin's (1957) account, behavior within the community is linked to the patterns of work found within the occupation, such that "the high degree of dependence upon the industry also helps to foster a high degree of interdependence between the members of the community" (1957:348). Further, the place-based treatment of community is similar to accounts of so-called "sub-cultural groups," "immigrant ghettos," or "ethnic enclaves" (Portes and Jensen, 1989) in its attention to a shared, particularistic value system, in this case oriented around work. In his study, one sees the initial representation of an occupational community as a marginalized or outsider group, distinct from other groups of industrial workers and content to be on its own.

Other early work stresses the tightly-woven link between leisure and work in certain occupational groups. Like Horobin (1957), Salaman (1974) concerns himself with local, closely-knit groups of British blue-collar workers in *Community and Occupation: An Exploration of Work/Leisure Relationships*. Many elements are shared in these two accounts, including an emphasis on marginality vis-a-vis other groups, interdependence among occupational members, and an interest by members to immerse themselves in the concerns of their work, even when not actively engaged in work tasks or formally "on the clock" at a workplace. The latter point has been taken up more recently by scholars of work, relating early accounts of occupational community to the emotional labor required by those employed in service industries (Sandiford and Seymour, 2007). In some of these industries, any boundary between work and leisure is purely analytical, as it is actively

minimized in the provision of leisure-based service, as in the case of many hospitality workers (Sandiford and Seymour, 2007).

In addition, an emphasis on community within occupations can be seen in the foundational statements of economic sociology, such as Granovetter's (1985) account of social embeddedness. Drawing on Eccles (1981) study of subcontracting in residential construction, Granovetter (1985) relates the absence of vertical integration in the construction trade to the socially embedded nature of the subcontracting activity. Alongside investment motivations, the explanation for long-term and tightly-knit teams hired by general contractors ". . . must be related to the desire of individuals to derive pleasure from the social interaction that accompanies their daily work . . . The overlay of social relations on what may begin in purely economic transactions plays a crucial role" (Granovetter, 1985:498). In other words, the work of organizing between occupational members is not merely transactional in the Williamsonian (1975) sense, but instead depends on bonds shared between practitioners.

One can see these ideas from earlier work cohere and expand in a theoretical framework provided by Van Maanen and Barley (1984), who give the concept of occupational community its strongest statement to date. As early advocates of the idea that the study of work should be reintegrated with the study of organizations (Barley and Kunda, 2001), their goal is to provide "an alternative to an organizational frame of reference for understanding why it is that people behave as they do in the workplace" (Van Maanen and Barley, 1984:4). In particular, the role of occupational community is treated as foundational to the process of social control within

organizations, as well as central to the understanding of deviance and conflict in the workplace. Such a perspective follows from the idea that the promotion of self-control and autonomy in work is characteristics of all occupational communities (Van Maanen and Barley, 1984), not merely the professions (Abbott, 1988). To develop the concept, they point to four primary elements constitutive of occupational communities, including *boundaries*, *social identity*, *reference group*, and *social relations*.

An occupational community depends on boundaries that are recognizable to its members, a fact with implications for researching such communities. The authors suggest boundaries must be discovered ethnographically, as an occupational community is "composed of people who consider themselves 'to be' members of the same occupation rather than people who 'are' members of the same occupation" (Van Maanen and Barley, 1984:13). Here, community boundaries are rarely synonymous with those enshrined in official occupational categories, such as those of the U.S. Census Bureau, but are nonetheless important in shaping the social identity of community members. In this conception, the values of occupational communities are expressed in the social selves (Mead, 1930; Blumer, 1969) of community members, constituting a social identity. Social identity is linked to the occupational roles of community members, roles that are regarded with pride by members on the basis of unique expertise. Members signal their identity with particularistic ways of speaking, with the use of certain tools, and through studied visual presentation (Goffman, 1956; 1971).

The audience for this social identity is found within the occupational community itself, as it is the primary reference group for its members. This means that community

members are mostly preoccupied with the activities of other members and their reciprocal demonstrations of membership. Through this shared attention, an occupational community develops "a distinct pattern of values, beliefs, norms, and interpretations for judging the appropriateness of one another's actions and reactions" (Van Maanen and Barley, 1984:25). In other words, occupational communities are defined in part by a shared culture among members. Van Maanen and Barley (1984) suggest mechanisms that influence the self-referential nature of occupational communities, all of which are pertinent to the work studied here. Marginalized, outsider, or celebrated status of the occupational group is one determinant of an inward-looking reference group, as is found in Becker's (1951) study of jazz musicians. This can be interpreted as the sense of acting uniquely as a group in contrast to external actors who lack the "correct" expertise or values. Socialization processes, often structured to shape new organizational members, also help establish the occupational community as a reference group, as in the case of policy academy recruits (Van Maanen, 1975) and junior investment bankers (Michel, 2011).

In addition, the self-referential community is comprised of members whose work can be said to pervade their non-work life. Consider funeral directors, who Barley (1983) shows must be available in their neighborhoods at all hours and so relate to others in the same role whose work life often intersects unexpectedly with home or leisure life. Likewise, "total work institutions," (Goffman, 1961) such as military units, are designed to thoroughly intermix work and leisure and so create fertile ground for the emergence of occupational communities. This strong influence on the reference group tendency is

related to the fourth pillar of Van Maanen and Barley's (1984) concept: social relations. In the ideal typical community, the distinction between worlds of work and worlds of leisure are purely analytical. Members experience both simultaneously as they develop social relations with fellow community members. One may find a particular inclination toward social relations among community members in situations that restrict opportunities for such connection outside the circle of others engaged in similar work. In addition, leisure pursuits may be intimately linked to work tasks, as Anteby (2008a) shows in the case of aeronautical plant workers, whose unofficial production of "homers" relies on plant materials and influences the dynamics of managerial control.

Although influential, Van Maanen and Barley's (1984) theory of occupational communities saw limited adoption upon its introduction. Yet, motivated by broad shifts in employment relations during the early 21st century, Barley and Kunda (2006) called for research on occupational forms of organizing, followed by Anteby, Chan, and DiBenigno (2016) a decade later. Project-based work, temporary and contract work, and the rise of service industries, prompted scholars such as Sandiford and Seymour (2007), Marschall (2012), and Weststar (2015) to study occupational communities in contemporary work. These more recent authors focus on work that happens within organizations, that is, by members of occupations who are also employed by organizations. However, with the exception of Van Maanen and Barley (1984) and Anteby (2008b), the scholarship on occupational communities is mostly silent on their relationship to organizational control and identity, a strange oversight given that many studies consider occupational work coordinated by formal organizations. Indeed, one might expect organizational scholars,

especially those working in the neoinstitutionalist tradition, to be more attuned to the occupational influences on meaning making that condition organizational behavior (Weick, 1979; DiMaggio and Powell, 1983).

One may even think of multi-functional organizations as assemblages of occupational communities, yet the theory does not do much to address interaction between communities. As a corrective, Bechky (2003) integrates organizational studies with the study of occupational community in her focus on the challenges of knowledge transfer in organizations. Like many social contexts of meaning making (Lave, 1988), occupational communities bring their own ways of viewing work (Lave and Wenger, 1991; Orr, 1990), which may produce tension when confronted by those of other communities or command hierarchies in organizations. Bechky (2003) documents the process by which communities, through reliance on boundary objects, create common ground amid divergent meanings, thereby transforming the knowledge of their work. Bechky's (2003; 2011) work, which focuses on the practices that emerge at the boundaries of occupational communities, is significant because it addresses the implications for knowledge sharing between occupational communities, "when strong subcultural understandings need to be communicated among groups" (314:2003) in complex organizations.

What little has been said about occupational communities in organizations provides a foundation for new insights about identity and control as organizations come to rely on non-employee workers. This dissertation draws on and expands the current understanding of occupational community to study individuals engaged in similar work

for firms, who strongly self-identify as community members, and whose activities and relations encompass work and leisure. Further, the literature is notably place-based, assuming shared physical workplaces and even habitation. Novel forms of organizing, including crowdsourced work, no longer rely on physical co-presence, yet the understanding of occupational community has not developed alongside contemporary changes in the organization of work. A corrective is necessary, especially given that theories of occupational community were meant to identity institutional influences beyond the domain of one local group or organization. Turning toward online and distributed instantiations of occupational community will help revive the theory for a new era of work. Can occupational community exist apart from the influences of formal organizations or geographical proximity? If so, where are the spaces that underlie self-reference and shared culture of occupational communities? Under what circumstances do workers develop occupational identities in the absence of job skills training afforded by organizational membership? Research in the present setting offers a meaningful step toward understanding contemporary occupational organizing.

**Dissertation Roadmap**

The following chapter focuses on the methodology and setting of the study. I describe the research design, data collection, and general characteristics of the study participants. I treat uneven access to the field sites as an asset, but such access requires elaboration in order to understand the forms of data collected in each site. Further, an extended treatment of the settings is warranted given their unfamiliarity to most readers.

In its online form, crowdsourced work is a relatively new phenomenon, with multiples actors implicated, including firms and their employees, non-employee workers, and the coordinating technologies themselves. I outline the basic infrastructural and organizational properties of each setting, along with the virtual and physical spaces in which I conducted observations and interviews. The chapter provides context for the analyses that follow.

The analysis is broadly organized into two parts. In the first part, I focus on one field site, Game Central, as an introduction to occupational communities in crowdsourced work. In particular, I show how crowdsourced workers remain socially embedded despite pressures toward atomization. Rather than relying on individual-level strategies for communication, compensation, and career, creative freelancers developed collective strategies to access feedback about their work, smooth compensation, and develop their skills in the image of expert practice. In using these strategies, freelancers fashioned their work arrangement with Game Central into a tolerable, if stressful, pathway toward stable employment. Part I not only serves as a corrective to those who assume the alienation of labor in the distributed and Internet-mediated contexts of crowdsourced work, but also advances the literature on contemporary occupational institutions by showing how occupational community matters in distributed work.

After theorizing the relevance of occupational communities to the organization of crowdsourced work in Part I, I then explore dimensions of these occupational communities through comparisons of CrowdInc and OpenTech in Part II. In the first chapter of Part II, I offer an account of socialization into these communities and their

respective organizations. Such a view is warranted, not only because organizations face competing pressures around socialization of crowdsourced workers, but also because we know little about the process of becoming a crowdsourced worker. Despite the intentions of employees in both organizations to extend the boundaries of organizational membership beyond employment, I find that contrary notions of occupational community and organization developed across the two settings. This chapter shows the processes of constructing organizational boundaries for non-employee workers and the two patterns of association that resulted.

In the second chapter of Part II, I consider control and consent in crowdsource work by focusing on collective identity among occupational community and organization. Building upon earlier scholarship on labor process theory, I find that the efforts of community members were strongly tied to ongoing processes of collective identity formation, as variously occupational experts and organizational members. This chapter draws on the understandings of organizational and occupational membership established in the socialization chapter and shows how the management of these identities matters for the production of consent. In so doing, I show how identity becomes a powerful motivator in cases of crowdsourced work, including both paid and unpaid forms, where the benefits of employment are withheld from workers.

# Chapter 2: Methodology and Setting

Organizational sociologists spent the last three decades considering changes to organizational structure at the hands of information and communication technology and alternative work arrangements. Several noteworthy cases notwithstanding, many accounts of organizational change in the new economy lack convincing depictions of work. This project is one effort to answer the call to "bring work back in" to organizational theorizing (Barley and Kunda, 2001; Anteby and Bechky, 2016). Organizational studies often focus on the external influences on organizations (DiMaggio and Powell, 1983; Powell, 1990; Tushman and Anderson, 1986), populations of organizations (Hannan and Freeman, 1977), managerial strategy (Davis, Eisenhardt, and Bingham, 2009), or labor markets (Fernandez and Su, 2004; Kalleberg, 2000). The last decade saw more research focus on workplace realities, particularly the dynamics between occupational groups in firms (Bechky, 2003a; Kellogg, Orlikowski, Yates, 2006; DiBenigno and Kellogg, 2014; Huising, 2015), but additional scholarship is required for organizational and occupational theorizing, especially in the context of alternative work arrangements. Relatedly, because many changes to work are cause and effect of technological change (Orlikowski, 1992), this research pays close attention to the role of technological artifacts in representing and constructing organizational boundaries and shaping occupational communities.

Further, this project was designed to offer comparative scholarship that is currently lacking in the literature on alternative work arrangements. In particular, research on crowdsourced work has been primarily directed toward several prominent

examples, such as the crowdsourcing platform Mechanical Turk or the ride-hailing platform Uber. The messy reality of crowdsourcing includes many more models, skill requirements, and labor relationships from which to theorize. To draw comparative insights from previously unstudied cases, I selected three field sites following the matched parameter approach outlined by Bechky and O'Mahony (2016). Each site included a focal firm reliant on the work of many crowdsourced workers, but with divergent organizational characteristics and unique models for incorporating the efforts of non-employees.

Before advancing to the empirical chapters, this chapter describes the data collection and analysis I used in the project. I also provide additional descriptive background on each of the three settings, noting the demographic characteristics of participants, the nature of crowdsourced work tasks, the virtual and physical spaces where I gathered data, and infrastructures of communication and task management. Employees and crowdsourced workers at each company relied on many communication and task management tools. In some cases, these tools amounted to virtual spaces, as places where project work was discussed and as embodiments of the communities themselves. Documenting these tools in any definitive way was difficult, not only because they changed overtime, but also because individuals had discretion in assembling their toolkits, which led to a wide variety. I include those tools to which I was exposed most often through conversation, observations, and my own use.

**Data Collection and Analysis**

Data collection included two years of observation and interviews in three field sites. Following a matched parameter design, I selected three firms that overlapped in their large-scale reliance on crowdsourced workers, where the use of such workers allowed labor to scale beyond the capabilities of the employed workforces. Although useful in identifying common processes, enhancing generalizability across organizational and institutional contexts, and linking institutional processes to those within organizations, comparative field research accounts for just 2.2% of articles in top organizational studies journals (Bechky and O'Mahony, 2016). Comparative studies at the organizational level are even less common. These studies can be difficult to conduct given their broad organizational scope and unequal access to sites, but also suffer drawbacks related to unaddressed variance and the glut of potentially distracting differences across setting. I tried to minimize data collection difficulties by staggering my introduction to field sites, relying on digital observations, and conducting interviews remotely.

The first setting, a video game publisher called Game Central, was studied largely from the perspective of crowdsourced workers rather than from within the firm, though I eventually complemented this perspective with several interviews of employees at the headquarters office. I entered the second setting, a software startup called CrowdInc, ten months after I began studying Game Central. My introduction to CrowdInc came through the founders and began with observation of the employed team at the headquarters office before incorporating the perspectives of crowdsourced workers. Finally, after roughly six

months of observation and interviews at CrowdInc, I began data collection at OpenTech. There, I worked as a participant observer by assisting with the research efforts of an employed, globally distributed team.

There were four relevant points of variation across the field sites, as illustrated in **Table 1**. First, firm size varied widely, from several dozen to one thousand employees. According to the firms, active crowdsourced workers amounted to between five and ten times the headcounts of employed staff at the firms. Second, the product markets included business-facing and consumer-facing offerings, so crowdsourced workers were engaged in both consumer- and business-targeted production. Third, the skill requirements of the work differed across the cases, from low-skilled data entry to high-skilled digital design and software engineering. Fourth, the models for community participation varied from open participation to managed community and a hybrid of volunteer and contract work. The firm-level variation provided a cross-section of workplace relations with potential generalizability beyond high-technology work. While the discussion of crowdsourced work may soon be relevant wherever tasks can be decomposed, coordinated, and monitored remotely, it remains the case that software firms are the primary adopters of this work arrangement.

**Table 1: Firm-level Characteristics**

| Firm | Size | Observation Period | Crowd Skill | Crowd Model | Product Market |
|---|---|---|---|---|---|
| Game Central | 500-999 | Fall 2015 - Fall 2016 | High-skilled | Open | Consumer |
| CrowdInc | 50-100 | Fall 2016 - Spring 2017 | Low-skilled | Managed | Business |
| OpenTech | 1000+ | Spring 2017 - Fall 2017 | Mixed | Hybrid | Consumer |

My access to these firms and their communities was uneven, yet the resulting data produced a broad and rich perspective of crowdsourced work, one that is missing from existing accounts of the phenomenon. Whereas Game Central granted only a limited period of on-the-ground study, CrowdInc invited a two-month observation at its office and OpenTech allowed for participant observation over a period of four months. In CrowdInc and OpenTech, it was only after establishing connections to the employed staff of each firm that I began recruiting crowdsourced workers to participate in the study. Thus, my observations at CrowdInc and OpenTech captured relatively more of the employed perspective, whereas the observation at Game Central emphasized collaboration among crowdsourced workers themselves. CrowdInc and Opentech comprised the comparative case studies explored in Part II of the dissertation, whereas Game Central provides the setting for the case study explored in Part I. The names of the firms have been changed to ensure anonymity of the participants.

In the tradition of past workplace ethnographies with digital components (Boczkowski, 2005; Takhteyev, 2012; Vertesi, 2015; Turco, 2016) and digital ethnography more broadly (Hine, 2000; Beaulieu, 2010; Boellstorff, Nardi, Pearce, and Taylor, 2012; Boellstorff, 2015; Burrell 2012; 2017), I collected data using formal and informal interviews, as well as virtual and in-person observation. The majority of in-text quotations in the empirical chapters are drawn from 110 formal interviews conducted with crowdsourced workers. These interviews were complemented by twenty interviews with employed staff of the firms and key informants. In my role as a participant observer, I also attended fifteen interviews of employed staff at OpenTech. During periods of observation in each setting, I conducted countless informal interviews with employees and crowdsourced workers, often using text communication rather than in-person interaction or video conferencing. For informal interviews, my goal was to gain contextual knowledge of specific interactions, so I frequently asked questions of participants after taking notes in video conference meetings.

Although I interacted with employed staff in person, nearly all of my interactions with crowdsourced workers were conducted using text or video chatting, often in the form of formal interviews. With the explicit permission of participants, I recorded each of these interviews, averaging one hour and fifteen minutes each, and transcribed the contents upon completion. I was the sole interviewer for this project and each interview was conducted in English. While the participants lived in many countries, each firm was based in the United States and so participants maintained conversational facility with

English. All of the names presented in the text have been changed to ensure the anonymity of each participant.

To gather a sample of participants for formal interviews, the sampling methodology varied across case studies depending on the model of community involvement and each firm's' willingness to accommodate interviews. For instance, at CrowdInc, where the firm acted as a gatekeeper to crowdsourced workers, I was provided with a complete roster of individuals and allowed to randomly sample potential participants for interviews. At Game Central, where an online platform allowed open participation, I randomly sampled using publicly available lists of crowdsourced workers. Like CrowdInc, OpenTech provided a sampling frame from which I randomly sampled active community members. In all cases, I initiated sample paths through random selection and then used snowball sampling to identify colleagues of the initial participant. This strategy helped maintain a mostly random sample, while still providing peer corroboration and alternative perspectives on shared experiences. I expand on the sample characteristics in the setting descriptions below.

The formal interviews were guided by a semi-structured questionnaire, which was revised over time to accommodate emergent research questions. Three specific properties of the questionnaire are worth mentioning and have been true from the onset of the project. First, the questions did not assume quality of interaction or strength of relationship among crowdsourced workers, employees and managers of firms, formal organizations, or occupations. For instance, following Van Maanen and Barley's (1984) notion of occupational community as an emic concept, I did not construe the identities of

interview participants as "community members" in our conversations. Rather, participants were asked to describe the nature of their interactions with any collaborators or business partners, including employees of the firms, representatives of third-party organizations, and fellow crowdsourced workers.

Second, all participants were asked to describe their recent work histories, including past jobs and job-relevant training, if applicable. These work histories were then used as points of reference, motivating comparison questions throughout the interviews. In order to explore the novelty of work in these settings, I sought examples of difference and similarity between their current and past roles. By highlighting their framing of crowdsourced work, this strategy helped uncover their assumptions about organizational and occupational boundaries. Third, I probed on episodes of contestation in their work, particularly those related to changes in the nature of work tasks, relationships with the firms, and the uses of technology.

In addition to interview transcripts, the analysis relied on a wide range of written material, including official company memos and marketing documents, publicly available message board conversations, messages in text-chat applications, and my own ethnographic field notes. When observing interactions online, I tried to achieve the same digital sense of presence experienced by workers themselves (Pink et al. 2016). This required regular interaction with workers in messaging applications, daily visits to online message boards where I tracked project developments, occasionally viewing live broadcasts of work, and even playing video games with workers at Game Central. These were all *cyberspaces* in which workers constructed communities (Kozinets 2010), so I

introduced myself as a researcher and developed my connected presence in these networked field sites (Beaulieu, 2010; Burrell 2012).

Field notes were often produced in the course of meetings I attended in person and via video conference. These meetings included six employee and crowdsourced worker onboarding sessions, four professional development sessions, twelve client meetings at CrowdInc, ten team planning meetings at OpenTech, and one conference for OpenTech employees and community members. Synchronous communication in meetings was only one slice of project work in these settings, however. To track the current events and projects of community members as they unfolded, I followed new posts on the central message boards of each community and watched as the conversations unfolded each day. Where I was allowed access to text-chat applications at CrowdInc and OpenTech, I followed on-going discussions and used informal interviews as occasions to dig deeper into the content of these conversations. In total, I compiled roughly 450 pages of personal field notes, screenshots, website pages, message board threads, and company documents.

My analytical strategy followed a grounded theorizing approach (Glaser and Strauss 1967). I relied on NVivo software to complete first-stage coding of field notes and interview transcripts from each field site using emergent and pre-determined themes. The coding process was synthesized in the form of analytical memos for second-stage re-coding and grouping codes into concepts. In Part II, comparison of the memos from CrowdInc and OpenTech led me to identify the general themes of organizational boundary work and occupational identity as salient in the work experiences of

crowdsourced workers. For example, codes such as “Role of Software in Monitoring Work,” “Managing Expectations Internally and Externally,” and “Knowledge Sharing Between Employees and Crowd” emerged while coding data gathered at CrowdInc. I then identified overlap with codes from OpenTech, such as “Meeting Requirements of Platform Software,” “Collaborating with Peers in the Crowd,” and “Negotiations Between Crowd and Firm.” Primary source material from each field site was then organized in shared categories for comparative memos integrating data from both case studies. Below, I provide background on each of the settings.

**Field Site #1: Game Central**

Game Central is a video-game publisher that managed a platform for digital design and game development. Virtual goods are submitted by creative freelancers and sent to Game Central employees for review and inclusion in the firm’s multimedia platform. Employees of the firm are tasked with integrating these virtual goods with content created by employees themselves. Interactions between freelancers and employees happen exclusively within the platform, through a series of tools for work submission and task monitoring. Game Central employees exert only minimal control of the work process itself, but the firm intervenes to guide the product completion phase after freelancers submit their work. In the following sections, I further elaborate the data and methodology used in the analysis for Part I, “Embedded in the Crowd.” I begin by providing a description of the digital fieldsite, which included the crowdsourcing

platform. I also describe the nature of the work products themselves, or the virtual goods produced by freelancers and submitted to Game Central for consideration.

*The Work Setting*

Crowdsourced workers at Game Central produce and market goods alone or in teams using specialized software tools. I consider them to be creative freelancers because they regularly work to "transform things of the world to create value" (Sallaz 2013:10), are engaged in artistic production, are compensated for their work by an entertainment publisher, and do not work on the basis of an employment contract. They vary in skill level and experience, ranging from the freshest amateurs to industry veterans. Expensive hardware and software is often used in the most polished productions, but the barriers to submission are quite low, making participation broadly accessible for individuals with an Internet connection and an interest in the work. There are five women and 42 males in the sample and all participants are between 18 and 40 years old, with roughly half possessing relevant formal training. In collaboration, they send written and diagnostic feedback, as well as digital work products, to one another via the Internet. When they finish products, freelancers upload them to the software platform operated by Game Central.

The crowdsourcing arrangement is one component of the firm's multimedia platform, a 200-million-user software suite used to distribute digital content. The firm earns revenue through the sale of video games and various supplemental goods for video games. The freelancers create these supplementary goods, known in the industry as *assets*, which are purchased with local currency by consumers. Unlike an online freelancing intermediary, such as the company Upwork or Amazon's Mechanical Turk,

the firm did not intend to create an online labor market, but instead solicits content submissions from freelancers, selects certain products for distribution, and shares revenue (paid in local currency) based on the sale of goods created by freelancers. Importantly, freelancers hope to be included in the firm's curated market of goods. As such, when freelancers produce new assets, they balance the expectations of the firm-as-curator with the preferences of consumers.

While the firm does not report the number of unique freelancers, the distribution platform, which emerged within the past five years, was viewed by some 10 million people at any given time, included about 180,000 assets, and had generated upwards of $50 million in revenue for freelancers during the period of study. The number of individual submissions per freelancer varies widely, from a handful to several hundred in the sample. Additionally, the production of these assets continues, in parallel, by co-located employees of Game Central. Thus, this flexible firm (Kalleberg, 2001) relies on revenue-based compensation of freelancers alongside long-term employment contracts for core staff.

*The Work Product*

If unfamiliar with markets for virtual goods, one might wonder what goods people are buying and how these goods are made. Imagine I open the firm's distribution webpage in my browser, where I see goods listed with prices and quantities available. Perusing this market, I see a purple pirate's hat and decide to buy it for one of my avatars in a video game. This type of asset, known as a *cosmetic asset*, is made using the skills of *concept design*, to sketch the basic idea of the object in two dimensions, *3D modeling*, to

create the digital object and give it the structural properties of a pirate's hat, and *texture design*, to apply the shade of purple and other visual accents. Similarly, I could acquire a new video game environment, known as a *map,* created using the skills of *level design*, to organize the layout and facilitate good gameplay, and *environmental art*, to beautify the map with graphical textures. Like the pirate's hat, this map acts as a supplement to an existing game, available for free or for several dollars via download to anyone who purchased the corresponding video game.

*Data Collection*

The analysis relies on data collected over a year of study, including digital ethnographic observation and 47 semi-structured interviews with participants in three continents and eight countries. The interviews were conducted by video conferences, which lasted for an average of one hour and fifteen minutes each. The interviews were recorded, transcribed, and anonymized with the written consent of the participants. Video conferencing not only was familiar to the participants from their own collaborative work, but also aided the interview process by providing a space for visual props and the collection of documentation. Participants would often present me with images of work-in-progress, promotional material for their submissions, links to conversation threads on message boards, and administrative documents from their exchanges with collaborators and the firm. Mimicking a common collaborative technique, a few even shared their screens during our conversations, allowing me a direct window into their work process.

Each semi-structured interview began with a description of the freelancer's introduction to virtual goods creation, traced his or her career trajectory, and then varied

depending on the current roles of each participant in the production process. As is common in artistic careers (Lingo and Tepper, 2013; Iyengar, 2013), these freelancers were creative generalists, with specialized skills that often overlapped in practice and shifted across projects. They were concept artists, 3D modelers, texture artists, programmers, environment artists, level designers, animators, and filmmakers. The primary inclusion criterion for the sample was freelance production for at least one of three video games distributed by the firm, and individuals were sampled using either random sampling or snowball sampling via participant networks. To initialize snowball paths for interviewing, I randomly selected two of the top sixteen most recent worker submissions per day for two weeks and requested interviews with the creators. As new submissions were added to the system each day, the platform's sorting algorithms repopulated the list and provided a fresh sampling frame. Although the submissions of amateur and expert freelancers co-existed on the platform, many thought that popular freelancers were structurally advantaged when promoting new submissions, thus introducing the threat of oversampling those with a larger network of followers. To avoid sampling on network centrality, I selected recent rather than popular contributions as my sampling frame. Once a path was initialized, I sampled on the basis of referrals, following a network path until no new leads were available.

To analyze the interview transcripts, field notes, and supplemental material from Game Central, I coded documents in three rounds following the grounded theory approach of Glaser and Strauss (1967). In my first pass through the data, a collection of loosely connected, online meeting places came into focus as relevant to the work

experience. The challenges of sporadic compensation and unclear career trajectory, as well as limited communication with the firm, also emerged as themes. I then made a second pass through the data to identify resources and collaborative strategies that originated from within these community groups, as well as contestation around goals, membership, and tool use. Occupational community, dependent upon websites, video conferencing chat rooms, and message boards, impacted amateur and expert freelancers. The individual-level experience with the occupational community led me to pursue a third round of interviews. I conducted ten contextual interviews with leaders of online meeting places and employees of the firm. Finally, as a validity check, I prepared a summary memo and presented it to a random subset of six workers, who found my account tracked closely with their emic perspective of the work experience.

**Field Site #2: CrowdInc**

Headquartered in the Bay Area, CrowdInc is a small, venture-funded startup. It has between 50 and 100 employees who work at its headquarters office and between 500 and 1,000 crowdsourced workers (known by employees as "the community") located around the world. The company builds and maintains a software-as-a-service (SaaS) platform, the goal of which is to assist client firms with specialized data collection. Unlike some competitors who rely exclusively on automated data collection, CrowdInc relies on a combination of automated database search and crowdsourced workers, who find data points matching the search criteria of client firms. Although this introduces additional labor costs, the firm relies on crowdsourced workers to access data points

machines might not reach. As one announcement to the community explains, “CrowdInc is committed to providing quality products and services to our clients. We couldn’t meet our client’s expectations without your hard work and dedication.” To conduct the work, community members review client requests and, using their discretion, search online databases to find appropriate data. The resulting matches are then vetted by other crowdsourced workers to assure quality for clients.

Community members generally do not have training in the work process prior to starting with CrowdInc, but nearly all are college graduates, speak conversational English, and were at one point employed at other firms. CrowdInc relies on word-of-mouth recruitment through existing community members, although new workers also find CrowdInc through advertisements posted to online job boards. I conducted formal interviews with thirty individuals, including seventeen men and thirteen women, who were between nineteen and forty-five years old. These individuals are primarily concentrated in several European and Asian countries with relatively high unemployment rates and comparatively low costs of living. They work with CrowdInc to earn income, but other self-reported motivations include the flexibility to work remotely, the excitement and legitimacy of associating with an American startup company, and the possibility of developing domain-specific knowledge in marketing and online data retrieval. Compensation for these individuals was based on data collected rather than hours worked or fixed salary.

As a managed approach to crowdsourcing, CrowdInc makes decisions about how best to organize non-employee workers, including who to retain and promote in the

community. To make these decisions, they rely on feedback from other community managers in supervisory roles. A managerial hierarchy is imposed on the community by the firm, such that lines of reporting extend from entry-level crowdsourced workers to the senior managers of the firm. While CrowdInc elaborates some aspects of the community structure, employees do not direct work tasks, but instead allow community managers to use discretion in staffing and executing projects. Unlike employees of the head office, the members of the community do not sign employment contracts and are free to work at other companies, but I found this to be uncommon at CrowdInc.

The head office is structured into several departments, including engineering, customer success, sales, marketing, and finance. Most departments do not have regular contact with community members but rely on their data and feedback to build software and provide services to clients. Those employees who do interact directly with community members do so only infrequently and on an ad hoc basis. The community is not strictly divided into departments, but instead organized around project teams. In addition, CrowdInc structures several ancillary teams in the community, including customer support and quality assurance. These teams are staffed by community members who are responsible for communicating the feedback of community members to CrowdInc employees and validating the work products of the community.

Like many startup companies, CrowdInc was in a fluid state during my observation period. Its business model underwent changes since founding and it regularly experimented with new business strategies, tools, processes, and structures, including those for the management of crowdsourced workers. I was granted an on-the-ground look

at the state of CrowdInc from the head office in fall 2016. After that, I began a period of online observation and interviewing with community members. By spring 2017, I noticed changes that seemed to move in contradictory directions. During follow-up discussions with employees, some stressed automation of the work performed by crowdsourced workers, while others spoke of renewed emphasis on these same individuals as "allowing us to do more for our clients." Although the results of these dual movements will surely have implications for CrowdInc's crowdsourcing arrangement, the day-to-day work of community members proceeded mostly unchanged during my study, although employees did undertake time studies of the community in order to further standardize the work process.

*Location*

At the outset of data collection, I spent two months shadowing and interviewing employees within the headquarters office. The office has the trappings of a Bay Area high-technology startup, which include a ping pong table that doubles as a conference table and stacks of complimentary food in the kitchen. The meeting rooms, which are decorated to reflect the range of countries represented by the crowdsourced workers, are outfitted with video conferencing technology, making it possible to visually include clients and remote workers in meetings. Photographs line the hallways and include images of the founders meeting with crowdsourced workers in different parts of the world. In the reception area, there is a framed printout of emails in which crowdsourced workers celebrate the hard work of the engineering team in creating their tools. Although the office includes engineering and marketing staff, I spent my time at CrowdInc

shadowing the sales and operations employees because they have the most exposure to the crowdsourced workers.

Beyond the headquarters office, there are many locations from which crowdsourced workers collect data for CrowdInc. I conducted English-language interviews with individuals in ten different countries. Although workers can apparently live in any country, workers tend to concentrate. These concentrations seem to exist where crowdsourced workers create informal job referral networks, referring their friends and relatives to work with CrowdInc. The community members nearly all choose to work from home, including their bedrooms, home offices, or living rooms. During interviews, it was not uncommon for conversations to be punctuated by the sounds of young children as workers juggled the responsibilities of the home and the workplace. The only hardware required to conduct the work is a computer and a broadband internet connection, but many workers utilize multiple monitors and powerful personal computers to make their data collection more efficient.

*Communication Tools*

To communicate, employees and community members use text-chat applications and email. Before I arrived at the company, employees and community members were unified in a centralized text-chat application, a relatively low-cost solution providing direct (one-on-one) and group-based instant messaging. At some point, the employees asked for a separate text-chat application to be used in the headquarters office. After agreeing, the leadership maintained one application for the community and one for employees, although several employees who regularly interact with community members

use the original text-chat application as well. Whereas the text-chat application for employees is an often overlooked alternative to the face-to-face communication within the headquarters, the application for crowdsourced workers is central to that group's work and interaction. In fact, the community is embodied in the public and private chat rooms of the text-chat application. Upon entering the virtual space of the application, it is as if the community becomes visible, with a discernible structure organized around project teams and their chat rooms. This embodiment of the community in a centralized, virtual space is untrue of the other two field sites.

Email and video conference are the most common means of digital communication in the headquarters, whereas text-chat communication predominates within the community. When trying to schedule interviews, participants told me to send direct messages through private chat in the application rather than through email. During their work hours, those in supervisory roles within the community must rely almost constantly on the text-chat application and email, the former for communicating with their teams in real time and the latter for asynchronous communication with employees at the headquarters office. For rank and file community members, who rarely interact with CrowdInc employees, the text-chat application suffices as their primary communication tool.

*Task Management Tools*

Community members use three types of tools to conduct work for CrowdInc. First, they rely on proprietary tools produced by CrowdInc engineers for the purpose of standardizing the work process. These tools help manage tasks and organize the

uploading, vetting, and sharing of data collected by the community. It is often said by community members that these tools rarely work as intended and slow down data collection in the process, but they are nonetheless required by CrowdInc. The tools do not assume advanced technical knowledge, but community members learn tips and tricks to reliably use the spreadsheet-like software. Second, community members use tools produced by their peers within the community. Where the proprietary tools fall short of achieving some goal, community members with software engineering skills create and distribute solutions to their peers, either formally through managers or informally through word of mouth. Sometimes these tools are shared with employees and other times they remain exclusive to the community.

Third, community members rely on tools produced by third-parties, such as Google's office suite or LinkedIn's search functionality. In the latter case, LinkedIn is useful as a semi-public database of employment data on millions of individuals around the world. These third-party tools are subject to change in ways both anticipated and unanticipated by CrowdInc and the community. When changes occur, as when LinkedIn changed its search format, solutions are produced by the company or the community so that data collection can proceed. Finally, there are several other third-party tools used by CrowdInc for human resources and training. These were exposed to me as I went through the application, interview, and orientation processes required of new community members. These platforms are not critical for the day-to-day work of either researchers or employees, but they do structure important functions like payment and professional development training.

**Field Site #3: OpenTech**

With headquarters in the Bay Area, OpenTech is a mid-sized, privately held corporation. Begun as an open-source software project, many of the initial participants retain engineering and senior leadership positions in the company alongside more than 1,000 employees in a dozen offices around the world. Beyond growing its product offerings and global user base, the company also pursues social projects related to free and open-source software (FOSS). To develop products and pursue its social mission, the company relies on a global workforce of over 10,000 unpaid volunteers (known by employees as "the community"). As one company announcement reads, "Employees and contributors have put in thousands of hours of work to ensure that this is going to be successful [...] employees are not able to test all [products] around the globe, so we need the power of the community."

Community members participate in a wide variety of activities that mirror those of employees, including core and ancillary tasks in software engineering, quality assurance, customer support, translation, marketing, advocacy, and community development. Although community members often serve multiple functions over the course of their involvement with OpenTech, my sample includes individuals primarily engaged in community development, translation, advocacy, and software engineering tasks. I conducted formal interviews with thirty-three individuals, including twenty-five men and eight women. In contrast to the high-skilled, yet self-taught creative freelancers at Game Central, those engaged in software engineering, advocacy, or community development at OpenTech tend to have some college-level training or experience in

engineering firms. Other tasks, such as quality assurance, customer support, and translation do not require advanced instruction and so individuals learn these skills by doing the work. Nearly all participants are conversant in English and maintain conventional employment at other high-technology firms or attend university. Several are paid on a contract basis, but most volunteered their time to OpenTech.

A number of innovations that have been key to the success of OpenTech originated as community projects, with early development spearheaded by community members and then transferred to employees for full realization. A significant portion of core engineering tasks were completed by non-employees over the past two decades, with OpenTech employees directing development on these projects at various points. Thus, the technical contributions of the community were central to the achievements of the corporation and notions of community reliance were salient at OpenTech.

However, as a mature open-source project, OpenTech was dealing with a familiar, yet difficult problem during the period of study. As O'Mahony and Lakhani (2011) find in similar settings, when opportunities for core participation decline, non-employees are less likely to contribute their time and energy to firms. The result is that "boundaries between community and commodity production processes must be carefully managed" (2011:34) to ensure continued commitment. Community members and employees shared the feeling that certain types of participation had declined even as the company grew. Leadership responded to this development with plans to understand and then grow participation from the non-employee members and future members of the global community.

As a mid-sized company, there are multiple divisions and dozens of teams at OpenTech. Through cross-sectional interviews across OpenTech, I gained a broad perspective of various divisional activities, but the bulk of my observations and interviews included community members and the employees who supported their work in the Community Support Team (CST). The CST works cross-functionally and across divisions in the company, with the goal of developing collaborations between employees and community members. This includes activities to develop talent in the community, such as programs sponsoring participation by university students and young professionals. The team's other activities include infrastructural improvements, such as the development of documentation and software applications to support collaboration between employees and community members. Finally, the CST researches the present landscape and future trajectory of community at OpenTech, which includes gathering data on community engagement and conducting experiments on novel ways to organize collaboration.

At OpenTech, crowdsourced work is loosely structured through community groups at national and regional levels, as well as functional groups focused on engineering, translation, and the like. Along with participant observation of the CST, I focused attention on several local communities, their corresponding online meeting places, and their members. I chose these communities to be globally representative, comprising groups in North America, South America, Europe, Asia, and Africa. To interview members of the groups, I asked CST employees for a roster of potential interviewees in the local groups and randomly selected from the list to produce a sample

of participants. Each of the local communities includes a distinctive mix of OpenTech projects and functions. Because the local communities are often populated by college students or young professionals, functional group affiliations vary over time as members develop skills and explore different forms of involvement. In fact, the CST found the variety of activities to be a strong draw toward community participation, as people join with many motivations and skills. Supporting OpenTech's social mission, developing skills along a career trajectory, solving interesting technical problems, and expanding personal networks are a few of the self-reported motivations among community members.

*Location*

The OpenTech head office is located in the Bay Area, where I participated in employee interviews and observed meetings. It is located in a suburban office park and situated next to several other software companies. Inside, the office layout resembles that of many professional service and engineering firms. Rather than the long, shared desks common to many contemporary software companies, individual cubicles house members of the engineering and corporate staff. These teams cluster cubicles in groups within several large, open-floor plan rooms. Shared working space is found in the dozens of meeting rooms that line the perimeters. It is not uncommon to find a few employees discussing their work in the centrally-located kitchens. These social spaces and meeting rooms served as my vantage points while visiting OpenTech.

Despite the dated layout, the firm boasts the accoutrements of many modern software companies. Free food and play spaces greet workers each day. Art displays and

interactive exhibits populate the halls and common areas, evoking the company's mission statement or recent projects. The meeting rooms follow the playful naming convention of many startup companies: choose a pop-culture phenomenon and its associated references label the meeting rooms. These meeting rooms are each equipped with technology to quickly add remote faces to meetings and the process works seamlessly (no small feat in the world of video conferencing). Wall decorations in the reception area stylishly reference each of the global offices, reminding visitors that the company extends beyond the Bay Area.

Upon my visits to the headquarters office, I was struck by the number of empty desks, unoccupied meeting rooms, and silent social spaces. Although OpenTech maintains physical office space in multiple countries, it is quite common for employees to work remotely, an arrangement they share with community members. At OpenTech, working remotely means working from a home office, visiting a co-working space or coffee shop, or, as is often the case for community members, working in the offices of other firms. A frequent refrain from employees is that physical location matters very little in the day-to-day work of the company, yet community members feel strongly that physical proximity enables access to information. Nonetheless, if one wants to see the action at OpenTech, one should direct attention to a suite of applications on personal computers and myriad tools for online discussion.

*Communication Tools*

Employees and community members at OpenTech regularly lament the glut of tools required to stay abreast of new developments, including those particular to project

teams and those relevant to the company as a whole. An up-to-date participant is expected to follow two forms of online communication at OpenTech: synchronous and asynchronous. Official announcements and structured discussions take place in an asynchronous discussion forum, available publicly to any interested parties on the Internet. As a result, planning discussions around new projects and debates about company policy are often transparent and include both employees and non-employees at OpenTech. Synchronous communication mostly occur in three spaces, including one tool limited to employees and two other tools for public communication between employees and community members.

As a participant observer hoping to follow the action, I frequently tracked and participated in online conversations. I did not have access to the closed messaging platform used by employees, but I did access open discussion forums and messaging platforms that were available to volunteers and contractors. Along with tools for synchronous communication, I also relied on the archives of the public discussion forum, in which I found interactions among employees and community members around issues facing the company. Although I could not access the employee-specific communication platform, I felt that my participant observation in an employee team balanced the public perspective I achieved through reliance on the discussion board.

Further, OpenTech was transitioning their communication tools when I conducted observations. My impression was that several teams had undergone their own communication transformations in an ad hoc way prior to my arrival. The transition I witnessed involved a new tool for employees, which was first adopted sporadically by

engineering teams before spreading more broadly as a matter of company policy. OpenTech chose to limit access to employees rather than include thousands of affiliated community members. In our discussions, both groups noted the cloistering of communication linked to the introduction and subsequent adoption of a communication tool reserved for employees.

*Task Management Tools*

Because community members are engaged in a variety of functions, core work tasks involve numerous software applications and online resources. One platform is widely used across functions at OpenTech. Like software engineers in many companies, community members who build and test software frequently rely on the website Github. At OpenTech, this website functions as a public task management tool, allowing employees and community members to view the status of tasks within projects. Community teams who work on non-engineering tasks find creative ways to generalize the task management capabilities of Github, such that it is used in project planning and execution for a wide range of activities. Thus, many employees and community members rely on the tool regardless of their involvement in software engineering. In a manner similar to Github, OpenTech maintains proprietary tools for managing tasks related to quality assurance, translation, and customer support. One such tool allows community members and employees to identify and provide improvements to OpenTech's software products in a streamlined fashion.

Documentation of relevant company policies and community guidelines are located on a public, Wiki-style database available to community members and

employees. This knowledge base is the destination of many links posted on the discussion forum, messaged through text-chat applications, and discussed in video conferences. As a centralized depository of company knowledge, it is a learning resource for newcomers to the community. OpenTech relies on a unique and colorful set of acronyms, idioms, and jargon to document its activities. As people often presented me with links to jargon-filled documents, I relied heavily on the knowledge base to familiarize myself with OpenTech. Training documentation regarding tasks, whether technical or non-technical, is provided in an ad hoc way to community members in functional and local groups. While employees experience an orientation program, there is no centralized onboarding process for newcomers to the community.

# Chapter 3: Embedded in the Crowd: Creative Freelancers, Crowdsourced Work, and Occupational Community

Reliable estimates suggest that all net employment growth in the United States between 2005 and 2015 can be attributed to the rise in alternative work arrangements, an increase of roughly 9.4 million jobs (Katz and Krueger, 2016), with acceleration in recent years owing to the development of online platforms for organizing independent contractors, or *crowdsourcing* work (Kaganer et al., 2012; Beynon, 2015; Farrell and Greig, 2016). In crowdsourced work arrangements, organizations source a global supply of contingent labor and rely on software applications to compartmentalize work tasks, monitor performance, certify the work product, and compensate workers. Although researchers are beginning to understand the extent and effects of the shift toward contingent work, many questions remain regarding the experience of contingency in the emergent context of crowdsourced work arrangements. In particular, we lack an account of how crowdsourcing remains socially embedded (Granovetter, 1985) despite apparent technological pressures toward atomization.

Existing accounts of crowdsourcing often draw conclusions about workers as isolated from clients and each other. Adopting an undersocialized perspective of economic activity, some depict crowdsourcing as "disintermediation" of work (Katz and Krueger, 2016), in which software applications unproblematically link workers to consumers or firms on the basis of impersonal optimization functions. Others have found evidence of excessive risk, alienation, and fragmentation among globally dispersed

workers (Graham, Hjorth, and Lehdonvirta, 2017; Scholz, 2013; Lehdonvirta, 2016). Popular and business rhetoric surrounding crowdsourcing stresses the efficiency of spot transactions between anonymous buyers and sellers, allegedly providing flexibility for workers while ensuring speed and savings for buyers (Boudreau and Lakhani, 2013; Sundararajan, 2016). If the rhetoric is to be believed, crowdsourcing represents the disembedded (Giddens, 1990) exchange once the object of economic imagination.

Despite the recent affordances of information and communication technologies in facilitating apparently atomized work online, previous research on contingent work would have us consider the social embeddedness of crowdsourcing. Scholars show how individuals experience the precarity of contingent work absent stable employment relationships with one firm (Weil, 2014; Neff, 2012; Marx, 2011; Lane, 2011; Kalleberg, 2009; Kalleberg, Reskin, and Hudson, 2000). Workers not only respond to challenges of contingency through reliance on individual strategies (Bechky and O'Mahony, 2006; Sallaz, 2015; Occhiuto, 2017), but also draw on collective resources, including those found in occupational associations, labor market intermediaries, and local networks (Osnowitz and Henson, 2016; Barley and Kunda, 2006). In this way, contingent work remains embedded despite tenuous relationships to firms.

Research on contingent work has yet to confront the more recent shift toward work conducted online. Although crowdsourced workers and firms may be largely disconnected save for spot transactions, it's likely there are meaningful connections among workers with implications for the labor process. Indeed, research using network analysis shows the existence of collaborative ties between workers in platforms such as

Amazon's Mechanical Turk and Microsoft's Universal Human Relevance System (Gray et al., 2016). Thus, theoretical and empirical work suggests these connections exist, but the content of the relationships between workers and firms and among workers remains obscured within the black boxes of online platforms. The task of this paper is to demonstrate the nature and implications of embeddedness in crowdsourced work.

To understand one process through which crowdsourced work remains embedded in social relations, I examine the work experiences of creative freelancers who collaborated and competed with one another while producing content for a video game development firm. Relying on data collected through interviews and observations, I show how an occupational community (Van Maanen and Barley, 1984) grounds the crowdsourced work experience in a social structure of fellow workers and consumers, acting as a proving ground in which freelancers developed portfolios, learned expert practice, and confronted the challenges of contingency in a competitive market. These individuals used collective resources to develop occupational expertise alongside freelance production for the video games they enjoyed. Further, absent task-related interaction with the firm, an occupational community fostered social devices, or strategies, tools, and structures (Beckert 1996), with which freelancers found meaning in their work, smoothed sporadic compensation, and navigated their career progression outside of formal employment.

Through analysis of the worker experience in relation to occupational community and the firm, this paper makes a contribution to the literature on contingent work and sheds light on new patterns of occupational community formation. In particular, I

demonstrate forms of occupational organizing in a system of crowdsourced work, representing a collectivist rather than individualist orientation toward work often considered in design and scholarship as isolated and alienating. By focusing on the challenges of work in this setting and the strategies developed by freelancers in concert, I show an emergent process of occupational coordination and identification that exists exclusively online and independent of formal organizations, yet in reference to industry-standard practice.

**The Undersocialized View of Crowdsourced Work**

Much of the scant research on crowdsourced work is limited to questions of clients' experience or consumer-market impact (Bardhi and Eckhardt, 2012; Zervas, Proserpio, and Byers, 2016) rather than the work experience itself. Those who study the work experience maintain an undersocialized perspective. Treating workers in isolation, Scholz (2013), Fuchs (2014), and colleagues have mostly focused on the individualized risks of paid and unpaid work online. With new modes of productivity on social media networks, online labor markets, and crowdsourcing platforms, these scholars find commodification of labor as firms recognize the extractive possibilities of treating consumers as producers (Terranova, 2013). Likewise, focusing on the relationship between Uber and its crowdsourced workforce, Rosenblat and Stark (2016) show how the company's algorithmic management (Lee et al., 2015) structures control through information and power asymmetries that strongly favor the firm. Little research on the crowdsourced work experience points to the benefits of participation or enactment of

control by workers. As an exception, De Kosnik (2013) showed how members of fan communities on YouTube, Facebook, and Twitter, while uncompensated for their content creation, treated their creative efforts as stepping stones toward careers in creative industries. Like standard internships (Frenette 2013), crowdsourced work may offer job-skills training in lieu of compensation, especially for creative freelancers.

Where they do examine embeddedness in crowdsourcing, scholars focus on "spatio-temporal fixes," highlighting the relevance of local networks and labor regulations in globalized production (Wood et al., 2016; Lehdonvirta et al., 2015). Accounts of crowdsourcing emphasize the technological properties that facilitate compartmentalization and distribution of work to individuals, while overlooking the possibilities for digital collaboration that those same technologies afford. For instance, although they rely on online message boards to study the work experience of Uber drivers, Rosenblat and Stark (2016) ignore the relevance of information sharing among drivers that takes place therein. While we know many crowdsourced workers execute tasks as individuals, there are also opportunities to experience teamwork on temporary projects organized online (Valentine et al., 2017; Retelny et al., 2014) and share business and task advice (Gray et al., 2016) with colleagues around the world. These socio-technical systems of collaboration are comprised of communication technologies, knowledge sharing, and worker relationships that extend beyond local context, but we know little about how the crowdsourced work experience remains embedded.

**Contingent Work Experience**

The literature on contingent work not only highlights individualized management of risk, but also points to labor market intermediaries and occupations that structure contingent work experiences in lieu of employment relationships. The growth of contingent work in the U.S. is often framed as a shift from employment-based labor relations, with the job security, health, and pension benefits of a long-term employment contract and internal career ladder, to those more closely resembling the ideal of atomized transaction in a market, where employer and employee loyalty are eschewed in favor of self-reliance (Pfeffer and Baron, 1988; Cappelli, 1999; Kalleberg, 2009). Competing positions stress relative gains for workers, in the form of increased spatial and occupational mobility (Bridges, 1995; Jurik, 1998; Pink, 2001), or for firms, as they can practice more dynamic staffing strategies (Cappelli and Neumark, 2003; Connelly and Gallagher, 2004). Setting aside the benefits for firms and workers (Arthur and Rousseau, 1996), it is well established that individuals and teams working on a contingent basis often experience added risk as a result (De Witte, 1999; Sennett, 1998; Kalleberg 2009).

The literature identifies individual and structural responses to the challenges of contingent work. First, individualist accounts focus on strategies to maximize employability and enact control over work. Due to limited employer-based training, contingent workers must cultivate job-specific skills for career trajectories that will be shaped by various projects rather than long-term employment. (Marler, Barringer, and Milkovich, 2002; Hardy and Walker, 2003). Bechky and O'Mahony (2006) show that, absent well-defined career ladders, freelancers piece together relevant work experience to

fashion a coherent career progression. Additionally, some contingent workers enact control over their work experience through "tipping games" (Sallaz 2015), resisting overtime and overwork (Osnowitz and Henson 2016), and discretion in scheduling (Occhiuto 2017). Freelancers also develop personal brands of entrepreneurship (Vallas and Christin, 2017) and work identities of self-reliance and expertise, such as "gurus" or "hired guns," as narrative buffers against the vagaries of the contingent work (Barley and Kunda, 2006).

Widening their scope from the individualist perspective, scholars have also explored the structural landscape of contingent work. Many contingent workers are embedded in local networks (Saxenian 1999; Neff 2012), frequently supported by intermediary organizations to link buyers and sellers of labor (Bidwell and Fernandez-Mateo, 2008; Kalleberg, Reynolds, and Marsden, 2003). Staffing agencies, professional associations, and professional networking websites are a few of the organizational forms that mediate the allocation of labor within fields (Benner, 2003; Cappelli, 2008). Rather than merely allocate labor, these intermediaries also provide services previously offered by firms-as-employers and once expected by workers-as-employees, such as communicating expectations between firms and contingent workers, smoothing compensation across periods of sporadic work, and crafting narratives of career progression (Barley and Kunda, 2006).

Contingent workers are also embedded, to varying degrees, in the firms that coordinate their work and the occupational groups with which they associate. For instance, Osnowitz and Henson (2016) show how occupational networks provide

resources for enacting control over working time among contract professionals, and Damarin (2006) documents the role of occupations in structuring web development work in flexible organizations. In addition, Van Dyne and Ang (1998) identify strong affective connection of contingent professionals to firms on the basis of their shared occupational identification with employees, such as fellow accountants. The result is that firms see strong engagement from contingent workers with shared occupational identity, some of whom rarely work on-site or interact with employed staff, yet labor loyally for their client firm without the benefits of employment.

**Occupational Communities**

The role of occupations has received the least attention in early studies of crowdsourced and contingent work. Yet, following studies of contingent work reviewed above, there are reasons to expect the structural embeddedness of crowdsourced workers along the lines of occupations, as is the case for itinerant professionals in high-tech industries (Barley and Kunda, 2006). Cornfield (2015) demonstrates how an occupational community serves to re-socialize risk in an increasingly entrepreneurial era. In his place-based account, Cornfield (2015) shows how Nashville played host to "horizontal occupational generalism" within the music industry, wherein independent musicians expressed strong solidarity with a diverse occupational community. Likewise, Ocejo (2017) posits identification with occupational communities as crucial for contemporary craftspeople who recode formerly low-status service jobs into meaningful vocations despite their precarity in a knowledge-based economy.

According to Van Maanen and Barley (1984), occupational communities form around individuals who are engaged in similar work tasks, who have a positive identification to their work, who share a culture related to their work that extends beyond the work tasks themselves, and who maintain relationships that blend work and leisure. There is also a fundamental claim to autonomy within occupational communities (Orr 1996), as "work domains where member identities and work practices have not been fragmented into organizationally-defined positions by highly detailed job descriptions, where work performance is not ultimately judged by a management cadre, and where entrance to and exit from the occupation is not controlled by any one heterogeneous organization" (Van Maanen and Barley, 1984:100). As work that takes place in the absence of strong coordination by formal organizations, blends work and leisure, and engenders positive identification, certain crowdsourced work, particularly that which is high-skilled or creative, may be influenced by occupational communities.

To be sure, there are reasons to doubt the significance of occupational communities for crowdsourced work, particularly because firms rely on such work as complement or substitute for certified occupational work (Lifshitz-Assaf 2017). Crowdsourcing is often intended by firms to aggregate the lay perspective with the work of professionals, such that inexperienced practitioners without credentials enter the market alongside formally-trained experts. Unsurprisingly, there are no occupationally-based barriers to entry in the present setting, wherein the three most active occupational categories, Multimedia Artist and Animator, Graphic Designer, and Software Developer, already exhibit low levels of social closure (Weeden, 2002).

In addition, existing theory on occupational communities often considers socialization and knowledge production as occurring within institutions of higher education (Becker et al., 1961; Anteby, 2013), as well as in formal organizations that coordinate effort among one or several occupations (Van Maanen, 1975; Bechky, 2003; Michel, 2011; Anteby, Chan, and DiBenigno, 2016). These two features, credentialing and membership in a formal organization, are absent in most cases of crowdsourced work. Without the familiar sites of occupational learning, identification with an occupational community may lapse or be irrelevant for crowdsourced workers.

There is limited study of occupational institutions online. Following Lave and Wenger's (1991) related work on situated learning and communities of practice (Wenger 1998), researchers study virtual communities of practice (Dubé, Bourhis, and Jacob, 2005; Hara and Hew, 2007; Murillo, 2008) as online meeting places for shared skill development among amateurs and experts. Similarly, the literature covering online knowledge networks focuses on occupational learning within firms, particularly the importance of knowledge networks among distributed teams (Leonardi and Bailey, 2008; Hwang, Sing, and Argote, 2015). Organizational scholars now frequently consider the relevance of Internet-mediated work arrangements for firms, but rarely for occupations as such (for an exception, see Knorr Cetina and Bruegger (2002)). Moving beyond the place-based and organizational accounts of occupational communities, it remains to be shown how and if they matter for work coordinated outside formal organizations and with extensive reliance on Internet technologies. In what follows, I show how

crowdsourced workers relied on an occupational community to confront challenges of contingency.

**Occupational Community Goes Online**

Interviews and observations exposed the centrality to freelancers' day-to-day work of collaborative relationships and information accessed online, yet separate from the crowdsourcing platform and the resources of the firm. In speaking about these knowledge sources, freelancers frequently relied on phrases like "the community," "our website," and "my team," each referring to one or several online meeting places. Along with their shared reliance on these domains for collaboration and information, freelancers saw themselves as engaged in similar work and leisure with peers.

Paul, an owner of one such meeting place, described what drew freelancers to his website:

> "Our most enduring sections on the site are the assets, the maps, and our work-in-progress section in our studios. The studios are essentially groups where members can join together and then release collaboratively their work as what we call a 'studio release' .[…] To get actual critique from another professional, that's not something you're going to get on the [firm's platform]."

Paul is describing collective resources that proved consequential for the work and development of freelancers. Rather than relying on professional associations, local networks, or firms to coordinate activity, this occupational community functioned as a socio-technical system, reliant on Internet technology to centralize information sharing, develop work-based identity, and facilitate collaboration among individuals with similar

work tasks and occupational culture. In particular, this community was built upon online meeting places that freelancers used for leisure, learning, and collaboration.

Not aligned with one firm or game, the online meeting places were variously operated as for-profit or nonprofit entities, as independent websites or components of larger platforms (such as Facebook or Skype), and as permanent or ephemeral connections. All of the online meeting places I encountered allowed for non-credentialed membership and open access to information, and so deviated from the image of occupational groups as tending toward social closure. In some cases, the meeting places organized toward commons-based peer production, as in one of the collaborative modes identified here, but this was not necessary to draw active participation by freelancers.

Within the community, workers practiced situated learning, received feedback from fellow consumers in place of interaction with the firm, shared resources to make compensation more predictable, and identified a pathway toward employment in the video game industry. In these ways, the occupational community and its online meeting places formed the structure within which freelancers faced the challenges of contingency.

Further, amateur and expert freelancers adopted occupational standards to meet the expectations of the firm. Within the online meeting places, I frequently observed instructional material referencing the "professional" quality work that would satisfy the firm's production requirements, such as the following post made by an expert freelancer:

> "This is a community for people who make (usually) serious [assets]. We want to make [assets] that follow the general [game] style and theme that most players will enjoy with the hopes of servers putting them into rotation or, at best, [the firm] buying it. […] The idea here is to make professional grade, quality [assets]. We are pretending we have a job. We want to do our job right."

Adopting these standards entailed occupational learning apart from the firm or other formal training. As described below, the exchange of knowledge required "to do our job right" happened external to the firm, but in reference to the firm's work process as the dominant model (recall Paul's reference to "studio release"). The firm did not attempt to organize the production of freelancers, but instead set the technical and design parameters for acceptable products, such as the number of polygons rendered per frame on individual assets or acceptable color palettes. To be sure, freelancers considered these general parameters when submitting products. However, as guiding principles, the scant instructional resources and standards were overshadowed as freelancers turned to the occupational community.

Relatively more consequential for the work of freelancers was a mass of instructional material, works-in-progress sessions, temporary teams, and network-based feedback provided by peer freelancers like Lane, who described his wide-ranging efforts to make the firm's expectations legible to the occupational community:

> "I was finding out by myself and I was posting everything I was learning to people who wanted to do the same thing. [. . .] You had to figure out a lot of stuff and a lot of stuff wasn't supposed to be done. [. . .] For example, making a character and adding it to the game was kind of impossible at that time. There was no way to do it unless you knew how to code it. But there was no documentation about that."

Within online meeting places, freelancers like Lane developed production knowledge in lieu of transparent guidelines or instructional documentation by the firm. The online meeting places of the occupational community structured collaboration among

freelancers and, in doing so, acted as proving grounds for the development of occupational knowledge. This process not only enabled the transition from amateur to expert among freelancers, but also helped community members' production align with the firm's expectations. Below, I elaborate on three challenges of contingency, showing in each case how freelancers relied on resources and strategies developed in the online meeting places.

## Responding to Challenges of Communication, Compensation, and Career Trajectory

Three challenges of the contingent work experience were salient in my observations and interviews with freelancers: limited communication with the firm regarding work tasks, sporadic compensation, and unclear career trajectory. While perhaps extreme, the challenges felt in the present case are generally familiar to others who have pursued alternative work arrangements, making the setting unique not in the challenges posed, but rather in the patterns of response available to the freelancers. Owing to assumptions about the isolated context of such work, we might expect crowdsourced workers to confront these challenges mostly using strategies that are individually rational, such as flooding the market with many average or low-quality goods to maximize chances of selection by the firm. Although surely present, I did not observe this individualistic approach, and it was not evoked in explanations by participants, who instead relied on descriptions of collective strategies when explaining their work experience. Each challenge was confronted, to varying degrees, through

reliance on the online resources of an occupational community, which played host to social devices that limited choice and increased the predictability of contingent work in this setting.

2. Limited Communication with the Firm

Susan, a concept and texture artist, held a Bachelor's degree in video game art and design. She had been employed by leading development companies, but decided to earn her living through work on the platform. She captured the frustration of many who tried to establish regular communication channels with the firm, explaining the primary source of her stress:

> "Not being able to communicate with [firm] over things that at a normal job would be simple [. . .] [Firm] selects what they want to consider and it's entirely up to them. We get no feedback in the process. Sometimes we don't even hear anything until it gets in the game. […] You just have to cross your fingers and hope that they like it, and sometimes they ask for some minor changes, like minor feedback, but that's usually all we hear from them."

Because of the potential transaction costs associated with a widely distributed supplier network, the firm tried to streamline communication via the platform. Like Susan, all freelancers were granted communication pages that functioned as a message board, allowing asynchronous communication between the firm and freelancers regarding submissions. According to freelancers, the firm rarely used this functionality, preferring instead to choose assets that were "ready-to-ship" rather than dedicating resources to a protracted revision process. One freelancer, with over five hundred projects submitted, guessed that only ten percent of these projects received any feedback from the firm. When the firm did suggest revisions for submitted work, comments often came

unexpectedly, months after submission, and required immediate attention if freelancers hoped to meet distribution deadlines.

Rather than task-related feedback, the bulk of exchanges with the firm happened through automated interaction with the platform. Jason, a freelance texture artist pursuing an Associate's degree in computer programming, described the resulting relationship, saying, "Most of my relationship with them is sending me an automated email telling me that my [asset] got accepted and then automated payments to my bank account. There are a few times that I'll email them [. . .] The only thing [they] say is 'we'll have this fixed in the next update, thanks." Nearly all cases I encountered reflect this pattern, where finished work was uploaded by freelancers, selected internally by the firm with automated confirmation, and distributed to consumers via the platform. Rather than operate in isolation without substantive input from the firm, Susan, Jason, and their peers practiced situated learning with fellow freelancers, as well as direct feedback from consumers.

*Collaboration and Feedback among Freelancers*

Given the firm's stance of limited communication, freelancers relied on fellow workers and consumers for feedback. I found that this feedback impacted the production decisions of all freelancers, if perhaps not for every project. Although I took the individual as the relevant sampling unit, the workers that I interviewed often worked in teams or partnerships. This is because asset production required a range of skills, and while a few experts had strong proficiency in each, most generalists preferred to do one thing well.

Collaboration in this setting included the efforts of large, informal groups, as well as smaller, closely-knit teams and peer feedback networks. In these settings, amateur freelancers were put in dialogue with skilled practitioners and benefited from their business and task expertise. Recalling his initial foray into the online meeting places, Jacob, a freelancer who had worked in a firm, explained, "There's just a network of 3D artists. There's a network of animators. There's a network of 2D artists, like myself, and we all just get together and collaborate [. . .] Somebody in my [game development company] happened to run an [online meeting place], which was just a community of creators, basically, and that's where I kind of met my first reliable person, you know? And we just started working together all the time. I was working with a bunch of different people." Beginners on this platform, who were otherwise excluded from the work experience of industry employment, found a window to industry-standard practice in the occupational community.

A collaborative mode adopted by all level designers in my sample was *playtesting*, the primary goal of which was to distill user feedback in a way that influenced an on-going production process. These collaborations, managed by online meeting places, mimicked the iterative development process at development studios (where in-office playtests are common during development), but depended on the infrastructure of messaging applications, networks of gameplay servers, and message boards for coordination. Below, a forum thread welcomed participation in the playtesting process, with reference to the typical collaborative infrastructure:

> "Once you have created a working [asset], be sure to submit it for a playtest. There are two types of playtests we do [...] [Some] happen at least once a week and are announced on the [platform] group together with a forum thread. Submit your [asset] in the thread and it will be played on the corresponding day."

Beyond the networking technology and coordinating function, freelancers relied on groups within the community to host and develop tools central to the collective effort of playtesting, including gameplay demos, interactive feedback systems, and analytical software. These tools emerged from within the community as attempts to synthesize feedback and structure the freewheeling design process common in much of amateur game development. That is, the occupational community made a self-conscious effort to construct collaboration in line with industry-standard practice. Michael, a self-taught level designer and organizer of playtesting sessions, justified this practice with reference to the firm's focus on gameplay, saying, "This is all stuff we could have done years ago and we didn't actually need to request anything from [the firm] [. . .] As I understand it, and I could be wrong because I haven't had industry work, but just based off of what I've been told, with industry it's *gameplay*, *gameplay*, *gameplay*."

Blending work and leisure, freelancers regularly gathered online to test each other's creations, providing written feedback, as well as diagnostic information via community-developed tools. While diagnostic tools showed how the map played in fact, written feedback offered opinion, such as "there really should be a route straight from A point to B" or "disable shadows on the door props. dynamics shadows are ugly." Mark, a self-taught level designer with an advanced degree in physics, described the role of community playtesting through analogy to the scientific method, saying, "The test

version is kind of like my hypothesis on how it's going to work. And the playtests are the data collection. And then after that it's just all analysis [. . .] we now have the tools that actually help create more data." While the core production teams had final say on revisions, the production process was often shared publicly to solicit feedback.

*Networked Feedback from Peers*

The collaborative mode just described was embedded within diffuse feedback networks in which projects were developed, tested, and given meaning for freelancers. Not all freelancers chose to participate in the active collaboration of playtesting or temporary team formation. Roughly ten percent of the sample maintained independence in production tasks. Even for these solo practitioners, the occupational community was a valued resource for the feedback. One such individual was central in his feedback network, as he described, "Every once and awhile my friend will show me a design and I'll draw something on there and help him out or somebody will share a technique or something, but that's all free. That's because they're friends, despite the fact that we're all sort of competing. It's weird, we're all kind of competing, but we're all sort of co-workers in the same sort of bizarre way." I repeatedly saw him act as a reliable mentor and sounding board for less experienced freelancers, whom he viewed more as co-workers than competitors.

Work-in-progress sessions, which will be discussed later, were one frequent venue for independent and collaborating freelancers alike. A frequent participant in these sessions, Brian summarized the mentality of independent freelancers when he suggested, "I try not to think about the competition aspect very much. [. . .] My fellow [platform]

contributors are some of the most talented, hardworking, and amazing individuals that I have ever known. Being able to foster community is so much more important to me than sequestering out of fear of competition." In this setting, even those mostly independent freelancers maintained an occupational network online.

*Meaningful Feedback from Consumers*

As in many occupational communities, freelancers practiced a hybrid of work and leisure time, which meant they had frequent opportunities to interact with the consumers of their products. As they were avid fans of the games for which they produced content, freelancers interacted with consumers and other freelancers as fellow gamers. Timothy articulated the feelings of freelancers surrounding consumer feedback, saying "I'd still like to play it enough to stay involved, I still want to take part in the communities and all that […] I hop in [the game] when I can and take part just to know what the community is up to as far as the player base goes […] I use it as a way to gauge what I should work on as well." The process that Timothy described is one in which consumers informally offered comments and critiques as freelancers honed their skills and developed new projects alongside their leisure.

In addition, these consumer interactions were crucial supplements that allowed contributors to find meaning in work that went largely unaddressed by the firm. While proud of their submissions, workers often conveyed a sense of inconsequentiality, as they lacked positive reinforcement from the firm acting in its curatorial role. Jim cautioned, "if [the firm] does not want you, they can cut you out at any moment. So, it's better for you to think like that. Never think you're employed or you're a contractor, because if they

want you to be a contractor you can get hired as an outsource worker." The ratio of firm selection to submissions was such that freelancers, regardless of the quality of their work, attributed their success to good fortune rather than individual talent or workmanship. As a result, freelancers looked to the opinions of peers and consumers to justify their continued investment, finding solidarity in an occupational community. Brian captured this succinctly when he told me, "I love being able to talk to people who either wear my designs or like my work in general. It gives the work you poured into a design meaning when someone else responds to it positively or critically." Community feedback helped entrench commitment from freelancers who otherwise entertained doubts about the value and direction of their work.

2. Sporadic Compensation

Taylor, a self-taught texture artist who supported his family through work on the platform, captured the risks surrounding compensation:

> "I'm pretty much a neurotic mess because you are kind of playing a lottery […] Every time, I'm thinking, 'Are they gonna pick me or am I going to the poorhouse?' […] I have no forewarning. I don't talk to [the firm]. I have no idea what they're looking for. My best hope is that I made some stuff that I think is cool and they agree."

Taylor's description notwithstanding, discussion of compensation was taboo among freelancers, as they worried about running afoul of the firm's non-disclosure agreement pertaining to revenue. As such, individuals were not asked about revenue in detail, but instead their reliance on income from freelancing. In the sample, roughly 50% of freelancers fully supported themselves or their household through payments received from the firm, a predictably high percentage given the oversampling of popular

contributors. Such support was possible because freelancers were compensated generously for their efforts, conditional on firm acceptance of their finished products and resulting sales performance. These figures varied considerably by season and type of asset, but without predictability, such that most contributors in the population did not earn enough to depend on this work alone.

Successful freelancers were pleased to learn that they were promptly paid if the firm accepted their work. The online platform facilitated fluid payment from the firm to contributors, and a support staff was available to field rare inquiries regarding pay. Still, each distribution cycle introduced a new period of tension, as contributors awaited selection of their products by the firm ("getting something in," as Taylor puts it) and anticipated the best strategy for steady income. As often happened in my conversations with freelancers, Taylor invoked the concept of lottery as a metaphor for a context in which he perceived limited agency, yet potential for generous compensation. In addition to maintaining other gigs, freelancers developed collaborative strategies to smooth compensation while they built portfolios and maintained hope for windfall profits.

*Smoothing Compensation with Partnerships*

Despite its centrality to their livelihoods, freelancers considered themselves only loosely affiliated with the firm. Even those freelancers who had received considerable compensation in exchange for their products did not acknowledge a significant business relationship. As in the cases of communication discussed above, strategies for managing compensation strengthened the bonds between fellow freelancers rather than between freelancers and the firm.

Most freelancers engaged in partnerships to spread compensation across groups of team members, but this strategy differed from the one anticipated by the firm in its design of the platform. In the dominant model of compensation, workers who received payment were those directly involved with the core production process. Teams discussed compensation amongst themselves and set their own rates for revenue sharing, typically based on each member's relative contributions to the production process: modeling, texturing, animation, graphic design, and so on. In most cases, these shares corresponded to hours worked, with more established freelancers setting the terms for newcomers within a team. By asking freelancers to finalize revenue sharing at the time of submission, the firm chose to avoid revenue negotiations between freelancers, instead allowing them to resolve disputes and distribute revenue on their own terms. While the revenue percentages were set in advance, creators were unable to predict compensation because conditions of product selection and distribution were closely held secrets within the firm.

Freelancers developed collective solutions to the problems of unpredictable and sporadic compensation. Two methods demonstrate how workers collectively innovated on typical use of the platform to manage risks in their work. In one approach, a core team of freelancers received large percentages for their production responsibilities, but peripheral individuals collected the firm's minimum-allowed revenue percentage, or a token percentage, in exchange for promotion to their personal network of peer freelancers and consumers. Jason, one freelancer who relied upon this method, explained the logic, saying, "The way we thought it was fair was the whole goal of the group was to generate

popularity and bring each other up [. . .] So people that looked at our designs could see our friends' designs, could join our group, and it was all kind of like a hub for us." Following on the success of their approach, Jason and his team eventually built an online meeting place to grow their influence. While explicitly limiting the revenue splitting to the initial participants, their group's mission statement reads:

> "We are a group of hardworking [freelancers] trying to create some of the most unique and creative [assets] currently in the [platform]. We decided to create a public community where people can ask questions and get feedback from us and other [platform] members."

In another model, freelancers partnered to receive small-scale revenue percentages for ancillary production tasks, such as translating promotional material for non-English-speaking consumers, in exchange for feedback or granting the same courtesy to peers on their own submissions. Upon encountering one example of a product description translated into multiple languages, including Russian and Swedish, I asked the lead creator why he chose to include translation for his product. He responded, "it's a lot more fun working together, actually [...] you send out some work-in-progress pictures to one of your friends and they can give you feedback on it." Besides being an enjoyable, collaborative experience, he then explained that peer feedback is reciprocated with feedback of his own and often complemented by ancillary tasks, like translation on his projects. His friends were happy to help with his project and he gladly included them in his expected revenue.

From the perspective of the platform and the firm, each of these individuals contributed to work tasks, yet the responsibility of most freelancers was limited to

reciprocal promotion among their networks. Even the minimum revenue percentage had the potential to generate hundreds or thousands of dollars a year depending on total sales, thereby providing supplementary income while participants pursued other projects. To smooth compensation, workers organized within the technical boundaries of the platform, yet did so in a way that challenged the firm's approach to compensation for freelance work.

3. Unclear Career Trajectory

The freedom of freelancing was both liberating and daunting for a self-taught 3D modeler named Matthew, who retained a low-paying service job alongside his work on the platform. He described searching for the next step in his career and honing his skills at the same time.

> "There's no actual metric that's visible to you to guarantee success. It's the uncertainty. I know nothing's for sure in life, but still it seems even sketchier than, 'Hey, I'm at a traditional job, I want to work my way up.' There is no avenue to do that. Creatively, it has been fantastic. An excuse to work on 3D and work on something you love is really great."

Despite the opportunities for flexibility, creativity, and profit found through work on the platform, employment remained the standard of success conveyed within the occupational community. Like Matthew, many freelancers used the work experience as practice for a future position, while also saving to afford the formal training helpful in securing employment at a firm. In the sample, all freelancers made a career of game development or had plans to do so in the future, with their current work viewed as a

pathway to employment. In this effort, freelancers struggled with variations on the same two questions: what is the next step in my career and how do I get there?

These questions reflected the particularly opaque career pathways common to occupations with low professionalization and frequent contingent work, such as those of video game development and design. Gaining exposure to expert practice, Matthew and his fellow freelancers relied on the collective resources of online meeting places for career development and learning through collaboration with more experienced peers. In this setting, online meeting places served as alternative sources of socialization into an occupational community.

*Beginners and Mentorship*

Sam, a self-taught newcomer to the platform, described the typical learning trajectory of freelancers:

> "I realized there was a [design tool] and I just started to play around with it, really. It wasn't anything serious, but as I realized there are these communities that exist where you can show off your work and get feedback, I started to really get into it. I think from that point, I realized that I want to keep making maps and become an actual, professional level designer [. . .] It's all been learning through my own mistakes, through other people's mistakes, and then the feedback process."

Like Sam, roughly one third of the sample began honing their craft within the last three years. Most of these beginners had not received income from their contributions, yet they continued to create assets with the hope that the firm would select their work. Some beginners had plans to seek formal education in the future, but all relied on training resources within the occupational community: YouTube tutorials, developer Wikis,

instructional discussions on message boards, critiques from team members, and discussions within work-in-progress sessions.

While structured feedback on projects could be found in playtesting, other collaborative modes included more personalized mentorship. Speaking fondly about his mentor, Sam explained, "I had a lot of help from [him] in the beginning [. . .] If I never spoke to him there would be no question that I would still be really delayed with my work." Often, newcomers found such mentorship by participating in temporary teams. Tim, a 3D modeler in school for software engineering, shared his screen to show me a collaboration board, during which time he described open collaboration across expertise:

> "Typically beginners post more work-in-progress and more professional or more experienced people will post their finished products or close to finished products, but it's definitely more open [. . .] [We] don't formalize groups of collaborators. Sometimes you work with other people and share revenue on a project, like with a concept artist, but if anything the community is centralized around [this] thread."

Once collaborators identified each other, screenshots and screen sharing facilitated dialogue as assets were created on independent screens, with more experienced participants guiding the process. Susan, an expert freelancer who earlier lamented the barriers to communication outside of a "normal job," described the collaboration of her temporary teams. "We will screen share to see what we're working on. We just kind of work at the same time, so it's kind of like we are in the same office, but remotely." I spoke with a beginner named Robert who worked in one of Susan's teams and credited its communication with refining his style. According to Robert, "That's an example of the feedback completely affecting what I had in mind. They had mentioned 'magical' and

‘graceful’ in the first place, but I guess I hadn’t really understood what they meant by it. That’s where back and forth from the beginning is really important.”

Even in the absence of temporary teams, experienced participants intervened to provide guidance as newcomers publicly proposed projects or revisions. I often noticed that the collaboration board contained ambitious plans proposed by new participants in a first post, with experts intervening to adjust expectations. In one instance, a longtime freelancer noticed resistance to a new proposal and wrote, “[M]any people won’t collab unless you can show some of your work; therefore it’s best to start by learning how to make a map yourself. This entire site is here to help you with your questions too.” This expert effectively redirected the original poster, who had intended to form a large team, to the instructional material provided on the site, where the beginner could further develop a portfolio and follow the typical trajectory of membership in the occupational community.

*Experts and Work-in-Progress Sessions*

Experts were those who worked, either as independent contractors or employees, for development studios at some point in their careers. Most found themselves between more stable employment opportunities, perhaps laid-off from development studios or between contracts, while a few were moonlighting as freelancers to supplement their wages. These experts represented the pinnacle of creativity and technical skill to which less experienced freelancers aspired. From their ranks came the most consistently successful freelancers, although experts who worked full-time on the platform felt just as exposed to the vagaries of the firm and often struggled with career advancement.

Their high-quality products and relative likelihood of success made experts particularly visible in the occupational community, and many participants told me I should interview one of the "professionals" or "industry guys." Adopting leadership roles, they offered critiques on message boards, created written and visual tutorials of production techniques, mentored promising beginners, participated in work-in-progress sessions, and occasionally video-broadcasted their work processes online.

Whereas collaboration boards facilitated team formation, online meeting places hosted work-in-progress sessions in which freelancers posted unfinished work and solicited comments from peers to "get actual critique from another professional," as emphasized by Paul earlier. First, the original poster would summarize his or her creative process alongside a screenshot of the unfinished work. Second, interested parties would offer constructive critiques, ranging from technical recommendations to creative feedback. Third, the original poster, hoping to solicit more feedback, would update the thread by presenting a new version in line (or not) with the recommendations. Below, an excerpt from a work-in-progress discussion illustrates this pattern:

> *Original Poster*: I am still trying to figure out the color scheme for [asset] as well as the look. I still have not adjusted the [asset], but I will do that for my next post.
>
> *Critic*: Are you using substance painter 2 [tool] for this? They have a shader set up for [game] (just in case you didn't know) […] The other thing that helps is to give your [asset] a general base colors block out. I would recomend [sic] you do these two things first before painting in any detail. Everything you need to know is right here [hyperlink to guide].

In this case, the critic offered creative guidance, linked to a hyperlinked guide, and drafted his or her own version of the original design to demonstrate the

recommended changes, which the original poster incorporated in a subsequent version and posted for the next round of critique. “I reworked the [asset] by expanding the wings. I followed the guide,” the original poster mentioned after thanking the critic. In this example, the conversation unfolded over four months as the project developed, with additional participants providing creative feedback and hyperlinks to instructional material.

Along with this asynchronous work-in-progress on message boards, experts video-broadcasted interactive work demonstrations. To learn a technique or understand a creative decision, viewers regularly posted questions in the accompanying chat channel and experts provided instruction. Ronald, an expert who often broadcasted his work process, explained a common motivation for expert participation in the community: “You’ll get cool people who are trying to learn 3D or something and they will ask very specific and pointed questions [. . .] When you work at a studio, you never get to interact with the end consumer, you never get to interact with the person who plays the game.” Experts appreciated opportunities to instruct less experienced freelancers and to relate as fellow gamers.

*Career Development Resources*

Despite their budding skills, less experienced freelancers were unsure how to make the transition from amateurs to industry “professionals,” so they sought guidance and models within the occupational community. They came in contact with expert freelancers, like Brad, who told them, “A [degree] does not guarantee a position, it’s all about your portfolio. If your portfolio is solid, it’s what you can *do*, and if you can do

what they want, you're good." Through contact with "professionals," freelancers learned that portfolios figured prominently in hiring decisions within the industry, a goal to which many aspired.

To this end, online meeting places promoted pathways to employment, whether explicitly, through networking events and opportunities for portfolio reviews, or implicitly through frequent references to industry-standard practice. One meeting place, which regularly held contests for asset creation and work-in-progress sessions, advertised its networking functions in a message board dedicated to job postings and portfolio reviews.

> "The [online meeting place] is now over 3 years old and growing stronger every day with new members, industry recruiters and students. By joining the group, you get firsthand contact with hundreds of experienced professionals looking to expand their network, share their insight [...] or [find] their next challenge."

Earlier, Lane described his role in modeling the development process for less experienced freelancers, but he also facilitated relationships between amateurs and individuals with industry experience. He described this responsibility, saying, "I used to make contests on [online meeting place] to help new artists get in the [platform] [. . .] We had a deadline, some guides for people, and I got some more professional guys to work together with them. It was a really enjoyable thing." Freelancers like Lane were transitioning from merely drawing on community resources to contributing and organizing career-relevant knowledge themselves.

## Discussion and Conclusion

Adopting an undersocialized perspective, popular and scholarly accounts of crowdsourcing often stress efficiency gains for firms and excessive risk for workers as new technologies support the disintermediation of work. Through a study of creative freelancers, the foregoing analysis shows an emergent structure of embedded exchange within an occupational community, one that complicates accounts of disintermediation or atomized exchange in crowdsourced work. Given their tenuous relationship to the firm, freelancers sought greater communication on projects, more reliable compensation, and career-relevant training to maximize chances for future success. Following scholars who examine the structural support of contingent work, I show how freelancers used collective strategies in pursuit of these goals. This contribution not only deepens our understanding of the crowdsourced work experience, but also complements existing scholarship that has emphasized the role of individual strategies and intermediary organizations in contingent work.

Rather than work in isolation, freelancers relied on playtesting, collaboration boards, and feedback networks as dimensions of an occupational community that helped decide what to work on and how to execute projects in lieu of the firm's guidance. Broadly accessible collaboration allowed for situated learning and offered opportunities for detailed feedback on projects. Blending work and leisure, freelancers relied on feedback networks that included fellow gamers in online meeting places, providing sources of direct engagement with consumers. Additionally, the findings show freelancers formed collaborative arrangements to smooth compensation. These collective strategies

aligned with the parameters of the firm's platform, a system built to provide sporadic compensation, yet reconfigured freelancer involvement as a more continuous work relationship.

Their embeddedness in an occupational community notwithstanding, freelancers felt exposed to risks of work on the platform. Success depended upon a closed decision-making process within the firm, one that remained consistent in its opacity throughout the period of study. While the occupational community and its online meeting places provided a source of identification outside the firm, this status did not afford bargaining power vis-à-vis the firm, as would be the case if workers held the rights of employment. Not entirely satisfied with the piecemeal and unpredictable work arrangement, freelancers viewed their participation as a stepping-stone toward greater security through employment with a firm.

To this end, individuals developed and relied on publicly available resources, such as work-in-progress sessions, video tutorials, and instructional guides, to develop their skills and learn industry-standard practice. They also found more targeted direction in teams, where newcomers encountered task and career models demonstrated by those with industry experience. Developing a portfolio was seen as key in this regard, but no one spoke explicitly about "personal branding" strategies (Vallas and Christin, 2017). In fact, freelancers did not develop the self-aggrandizing identities of "hired guns" or "gurus" (Barley and Kunda, 2006), but rather anticipated their ascension (or return) to full-time employment as "actual professionals" within development studios.

Further, by identifying resources and strategies found exclusively online, this study broadens our understanding of occupational institutions to include occupational communities that are not locally or organizationally embedded. In theorizing a matrixed economy, where "occupations become the nexus for accumulating, developing, and disseminating knowledge," Barley and Kunda posit local networks and intermediaries as "occupational institutions that would assist contractors in developing skills, social capital, and other resources" (2006:311). While the present findings likewise underscore the relevance of occupational institutions to contingent work, geographical proximity and organizational membership appear irrelevant to their formation in certain contexts. As work increasingly moves outside of employment, it is worth considering the novel spaces of occupational learning and coordination that support alternative work arrangements, particularly those organized online and with limited interaction between firms and workers.

Finally, the findings also force us to reconsider the relevance of firm boundaries for workers in the new economy. When discussing contingent work, there is a tendency in the sociological literature, as in official statistics and labor law, to dichotomize workers' experiences as either within or outside firm boundaries, as "employee" or "independent contractor." In providing a corrective to the undersocialized perspective on crowdsourced work, the present case complicates the dichotomized view of firm boundaries. Freelancers worked in the shadow of the firm, with neither the protections of a standard employment contract nor the individualized identities of independent contracting, yet they were not adrift. Instead, they built affective connections, variously positive and

negative, to their work, their collaborators, and the firm. These connections, along with possibilities for career mobility through training, sustained freelancer engagement. While the firm played a significant role in facilitating this relationship, it was ultimately one that depended upon occupational community cultivated online.

# Chapter 4: Socialization in Crowdsourced Work: Evidence from CrowdInc and OpenTech

Since at least the 1980s, corporate leaders have self-consciously tried to shape the culture of their organizations. Organizational culture, and the development of organizational identity among employees (Pratt, 1998), is widely seen as foundational to commitment and key to motivating an organization's workforce. It forms the basis of cognitive control as practiced by firms (Van Maanen and Schein, 1979; O'Reilly and Chatman, 1996; Michel, 2011). Workplace ethnographies, particularly those in the high-tech industry (Turco 2016; Kunda 1992), document efforts to socialize organizational identity among employees. Of course, the inculcation of organizational routines and collective ethos among workers is nothing new, but recent decades have seen the transformation of culture into an object of study and refinement by managers (Alvesson and Robertson, 2006).

In his seminal statement on organizational culture, Kunda (1992) shows the unintended consequences of "strong culture" management prevailing at the end of the twentieth century, when workers began to cynically reflect on the machinations of their culture-obsessed managers. In Kunda's (1992) account, human resources staff and managers crafted orientation programs, company-wide presentations, social events, and physical workspaces to socialize workers into an organizational culture of productivity, with mixed success. As one manager suggests, "You can't make 'em do anything; they have to want it" (Kunda 1992:7). With some added self-awareness, high-tech companies have largely retained their focus on shaping organizational cultures, including

opportunities for vocal reflection by employees (Turco 2016). But what of non-employed and remote workers coordinated by firms?

Most organizations that focus on shaping workplace culture do so among their employed workforce. In fact, Kunda (1992) tracks the divergent experiences of organizational culture between contract workers and employees in his field site, where the latter were allowed the benefits of full membership while the former were actively excluded. Upon studying managers, employees, and contract workers, Kunda observes, "Although physically present, they are not expected (or allowed) to become full-fledged participants in the organization or subjects of its ideology. In the managerial view, temporary workers are present in body and activity only and are not expected to share the experience that members are assumed to have" (1992:209). In current alternative work arrangements, temporary workers may not even be present in body. Similarly, Barley and Kunda (2006) note the ways in which organizational culture is selectively shaped for employees rather than temporary workers in technical firms. These cases show that firms make conscious attempts not only to mold organizational culture among their workforce, but also to restrict these efforts to the employed workforce, in part to reinforce the legal distinction between employee and independent contractor.

Following these accounts, one might expect exclusion of crowdsourced workers from the experience of organizational culture. After all, besides missing the physical presence that tends to accompany "full-fledged" organizational membership, crowdsourced workers are not employed and so, to police the legal distinction between independent contractor and employee, may be actively excluded by the firm. Similarly,

where employee voice is actively promoted as a cornerstone of organizational life, firms have a particular interest in closely guarding who can speak on behalf of the organization (Turco 2016). Those who feel they can speak for an organization are in positions to shape the public perception, or the organizational image (Alvesson, 1990), of the firm, which can carry high stakes when related to strategic projects or confidential information (Dutton and Dukerich, 1991). Finally, where crowdsourced workers and employees conduct work of similar quality, nature, and value to the firm, we might also expect policing of a status hierarchy by employees who guard their organizational identity as emblematic of their occupational expertise (Lifshitz-Assaf 2017; Gieryn 1983; Abbott 1988). Thus, there exist significant pressures to construct distance between the identity of community members and those of employees in the socialization process.

At the same time, organizational leaders face strong motivations to enculturate workers who may otherwise lack commitment to tasks, particularly those tasks that are ancillary or peripheral to the core productive activity of the firm. The feeling of team, organizational, or occupational membership is conducive to the successful completion of work tasks that are taxing (O'Reilly and Chatman, 1996) or marginalized in the firm or society more broadly (Van Maanen and Barley, 1984). Regardless of the task content, we might also expect enculturation as a buffer against the perception of transactional relationships with crowdsourced workers, where a transitory, online workforce could lose interest in projects, find new opportunities online, and offer its services to a new firm without steep transaction costs. The so-called "drive-by contributors," or crowdsourced workers who only engage in one-off or sporadic work, are a persistent concern for

employees in at least one firm I studied. Participation in a shared organizational culture could help sustain interest from individuals who may otherwise move along to similar opportunities. As a result, there are reasons to expect socialization along the lines of organizational membership for crowdsourced workers.

Like organizations, occupational communities also develop in newcomers a sense of shared boundaries, social identity, reference group, and social relations. Indeed, in most settings, organizational socialization is intertwined with occupational socialization as many occupational members learn the practices, values, and identities of their work when they join new organizations. Scholars show that occupational socialization often reflects the relationship between occupations and the broader context of their work, including the organizations and societies in which they practice (Van Maanen and Barley 1984; Anteby, Chan, and DiBenigno, 2016). In practice, important distinctions can also be drawn between organizational and occupational socialization, such that aspects particular to the culture of an occupational community are transmitted apart from organizational culture. Within occupational communities, "cultural transmission transcends specific organizational settings since members who are widely dispersed and unfamiliar with one another display similar understandings and attitudes toward the work they do" (Van Maanen and Barley, 1984). This transmission may be particularly salient in the present setting, where workers are dispersed and more tenuously linked to organizational context, at least by the standards of twentieth-century employment.

Deviations in the socialization process between organization and occupation can occur when the goals of organizational leaders are not shared by members of an

occupational community. Anteby's (2008a) study of aeronautical plant workers demonstrates this pattern, where a sense of achievement and the basis of commitment for workshop staff is partly derived from unofficial production rather than the official production expected by managers. Although managers find ways to maintain control over occupational pursuits (Anteby, 2008b), the culture of achievement in work is distinct, yet complementary between the organization and the occupation. We may also expect similar deviation when organizational leaders try to distance members of certain occupations from full-fledged membership in the core production of an organization, particularly where contestation arises over task jurisdiction and the use of new technology (Barley, 1986).

In sum, there are multiple, often competing demands and influences related to socialization in the present research setting, with implications for the development of occupational and organizational identity among crowdsourced workers. To shed light on the resolution of this tension in practice, this chapter asks: How did crowdsourced workers experience socialization in response to the competing pressures around organizational culture? In particular I document the intentions and strategies of CrowdInc and OpenTech toward enculturation and probe whether or not socialization of occupational community members aligned or deviated from these goals. In providing answers to these questions, I demonstrate the relevance of socialization as a foundational process of boundary construction in crowdsourced work.

To understand the process of socialization as a crowdsourced worker, I chose to study multiple sites. Most studies of occupational socialization prioritize depth over

breadth, focusing on one occupational group as members make the transition from recruit to full-fledged member (Anteby, Chan, and DiBenigno, 2016). In contrast, this account of socialization is comparative, relying on data from the socialization experiences of two online occupational communities: a group of workers who performed low-skilled data entry tasks and a group of contributors to an open-source software development project. These two communities operated under the purview of two different organizations, yet the community members were not employed by the organizations, which offered varying degrees of freedom to workers in forming teams, accomplishing tasks, and managing workflows.

Data collection occurred through participant observation and interviews over the course of one year, beginning first at CrowdInc and then transitioning to OpenTech. I focused primarily on the onboarding experiences of crowdsourced workers, with additional observation and interviews regarding employees' perceptions of those processes. In order to capture the experience of joining, I simulated new membership in each occupational community with the approval of the firms. Thus, I became a "newbie" at CrowdInc and an "OpenTechie" at OpenTech, without the work responsibilities of membership in these groups. In addition, because I had privileged access to the organizations as a researcher, I relied on archival data, including company memos and community chat transcripts, to help capture an image of socialization in each setting. Lastly, I draw largely from the experiences of newcomers, who joined the communities within a year prior to data collection.

In what follows, I demonstrate the process of occupational and organizational becoming (Anteby, Chan, and DiBenigno, 2016), or socialization, as it happened in two online occupational communities. As the evidence suggests, socialization into organization and occupation were strongly related, yet the relationship between them varied across the two firms. The results demonstrate the different strategies adopted by the employees of firms and occupational community members to navigate organizational boundaries through identity construction. Divergent approaches at CrowdInc and OpenTech not only reflected the uncertainty in a novel organization of work, with few institutional templates from which to draw, but also emerged from the particular contexts of work that are explored in the following two chapters. Unsurprisingly, the process by which one becomes a crowdsourced worker matters greatly for the experience of collaborating with these two firms, with strong implications for control and the establishment of an occupational mandate.

**Findings: Socialization at CrowdInc and OpenTech**

At CrowdInc and OpenTech, crowdsourced workers learned to regard themselves as participants in communities. Their self-conceptions and their conceptions of the collective followed the pattern first outlined by Van Maanen and Barley (1984) and reinforced by subsequent scholars of occupational communities. The categories "community" and "firm" are thus not merely analytical, but reflect the reality of salient categories for participants. For the volunteers of OpenTech, local and functional groups formed the basis of their occupational identity apart from the firm. Even those individuals

in the community surrounding CrowdInc, who maintained a highly integrated organizational identity, saw themselves as participants in a community, much the way a team might identify as an affinity group within a firm. In this way, identity in the occupational community was not mutually exclusive with organizational membership, just as aircraft mechanics who work for Boeing may identify primarily as aircraft mechanics at certain times and Boeing employees at others. Rather, variation between CrowdInc and OpenTech emerged in the extent to which individuals adopted organizational identities that intersected with their occupational identities. The experiences of joining, by which individuals came to better understand the communities and the firms, mattered greatly for control, as will be discussed in the following chapter.

**CrowdInc: Joining the Community and the Company**

A welcoming face wanted to learn more about me: "We try to make our workers feel comfortable at CrowdInc, so we want to know about your ideal work environment." I encountered this prompt as part of my interview process for an entry-level position in the CrowdInc community. Unlike most job interviews, this process was entirely automated on the Internet, relying on my computer's webcam and a pre-recorded conversation with a company representative. When I heard her prompt, I felt assured I'd be a good fit. I preferred to work at home, I explained to my webcam, because it's comfortable and allows me to focus. I answered several more questions about my experiences and then submitted my video to the online interview portal. In three days, I received an email informing me that I got the job.

Unlike a typical applicant for this job, this was not my first impression of the company. Instead, I was undertaking a new phase of data collection as a participant observer within the company's online community rather than a passive observer at the headquarters. I went through the job application process like any new hire, including a grammar test and a practical test with tasks meant to simulate the actual work experience. The tests were online and my performance was monitored via webcam, though such direct performance monitoring was limited to the application process. To meet an important qualification, my Internet connectivity speeds were tested automatically. Once hired, I attended the new hire orientation, several training programs, and information sessions with my cohort. Together, we learned how to work and interact in the community.

My cohort and I applied through the company website, which was tastefully adorned with the company's memorable logo, and interviewed with someone who identified as a company representative, but we did not become employees once we were hired. In fact, we did not meet any employees of the company as we began our training. Instead, we were introduced to an online communication platform, a video conferencing tool, and project management software. In the communication platform, we were able to see active conversations scrolling bottom-to-top across our screens, while the video conferencing tool offered a PowerPoint presentation with company policies a friendly instructor to guide us through orientation. Once we gained access to the project management software, we could see a long list of projects and their requirements.

The socialization process within the CrowdInc community supported an integrated identity of community and company. As at OpenTech, newcomers to CrowdInc found their support structure was comprised of peers in the community rather than employees of the company, or "people of the head office," as they were known to the community. In at least two ways, interpersonal support within the community provided guideposts for those who, upon first entering the community, were frustrated by the content or nature of work tasks. The relationships of camaraderie not only showed how to do the work, but also showed workers why they should care to do the work well. However, this support structure complemented a centralized onboarding program shaped by a strong narrative of company membership. The result was that individuals identified strongly with fellow occupational community members, as you might with a project team or functional group in a formal organization, but regarded themselves as bonafide members of CrowdInc as well.

**"It looks like a wild thing, but it's really organized": The Experience of a Newbie**

Upon entering the CrowdInc community, I saw a flurry of activity. In a literal sense, "entering the community" meant accessing the central chatroom of a workplace messaging platform. Here, I found a list of messages, each message scrolling upward incrementally as new posts were added to the conversation. A relative newcomer to the community, Christopher captured the experience of joining the chatrooms and the virtual project work space. "It looks like a wild thing, but it's really organized. Everyone knows what they're doing. On the outside, you can see on the main chat a lot of smileys and

joking around, but it's pretty much just *work*, *work*, *work*." His first impression was similar to my own: lots of emoticons and fast-paced exchange of jokes in written text. I agreed that it looked wild, yet I saw signs of organizational structure. These included subdivided chat rooms in the menu and abbreviations like "[PM]" (for project manager) and "[CARS]" (a team name) signaling organizational title and team affiliation, respectively. It was also clear that people were asking a lot of questions.

As questions, emoticons, and hyperlinks scrolled bottom-to-top on my screen, the "wild" nature of the chatroom seemed to welcome rather than discourage interaction. In fact, the beckoning nature of the chat was regarded by community members with a common phrase: "atmosphere of the rooms." According to one veteran worker, "Another really good thing about CrowdInc: the atmosphere. We're all working from home, but when you are sending songs, and memes, and emojis over the chat application. It brings us all a little bit closer." In particular, Christopher described this atmosphere as one of intimate support. He told me, "Smileys all around. Everybody's asking questions [...] Everyone in the room helped each other. When someone types something, you can basically feel what they say." Considering this sentiment to be counterintuitive, I asked Christopher what it meant to feel the expressiveness of text in the chatrooms. He went on to describe, "I know the written word is a tough thing, but you can feel the devotion to the job. Devotion to helping colleagues if they don't know what to do with the information. Everyone was deducting their time, from doing what they are paid for, to help someone fix their issue for free." Christopher was surprised to find the community so interactive, not only because he expected the "cold relationships of manual labor" to

which he was accustomed, but also because he assumed an isolating focus on productivity. As with his peers, the welcoming atmosphere was Christopher's first memory of community membership and it helped him persist in his work despite initial reticence.

Like many, Christopher's introduction to the community was frustrated by early inefficiencies in his workflow. Most of the tasks required searching throughout the Internet for pieces of data requested by the company and its clients. Although he experienced an orientation like mine, he nonetheless felt unprepared for the job. The frustration emerged because he was working "overtime," or longer than his allotted compensation, to find the requested information. Feeling unproductive, he turned to the project chatrooms to learn processes that might allow him to reach his efficiency goals. There, interactions with team members yielded useful guidance and encouraged him to ask more questions of his peers and managers. He recognized the benefits of collaboration, of which he told me, "The thing I like about the community is that everyone is sharing resources. That is the first thing I noticed and that is the first thing I liked about it. No one is hiding anything from anyone. If I find a resource as a researcher or a tool that makes me faster, I'm going to share it." Christopher learned of the strong norm that enforced horizontal and vertical information sharing among community members.

In the project rooms, I encountered numerous exchanges of tools and tips for helping individuals work faster and more accurately. The blend of messages in the chat room was equal parts question and answer, which gave the impression not only that the

work required assistance, but also that team members had solutions to problems that arose. Questions did not go without replies for long and managers were particularly vocal in responding to worker requests in the chat. I could not observe private conversations between managers and workers, but interviews with both parties suggested that "pings," or private messages in the chat platform, were a near constant fact of life for managers. Below, I've included an example of a public exchange between a newcomer and a manager in a project chat room:

> *Newcomer*: I have [software tool]
> *Manager*: that's good
> *Newcomer:* are there any other tools we can use
> sometimes that [software tool] gives problems
> *Manager*: if you dont want to use your own email to send test emails you can use this one [hyperlink to software tool]
> i use [software tool]
> it is pretty good
> *Newcomer:* cool thanks
> *Manager:* :thumbs up:
> *Newcomer*: how many hrs [hours] do we need to do a day?
> can we work on other projects or only this one for now?
> *Manager*: as many as you want
> and yes you can work on all the projects you want
> *Newcomer*: great

Exchanges of tool-based and task-based support, like the one presented above, were commonplace in the field site, as newcomers learned the collaborative expectations of their peers and managers. Those uninitiated to this norm were affectionately regarded as *newbies*, a term commonly used to describe newcomers in Internet-based groups, but

one carrying specific meaning in the present setting. Stephanie, a community manager, told me, “We call ourselves newbies when we come from boot camp because we actually know nothing about client projects at that moment.” A fellow orientation attendee told me, “We all embrace that nickname and nobody takes it in a bad way.” Most often, newbies pointed to unsolicited help from peers and managers as they learned about client projects. Judy, a newcomer to the community, told me, “I had a lot of questions at first, but I didn’t even have to ask. People came to me by themselves and they were like, ‘Okay, you’re new. Ask anything. We are here to help you.’” The expectation for mutual support was set among newbies as they interacted in the project chat rooms.

These relationships extended beyond the work tasks themselves. Initial contact, focused mainly on how to do tasks most efficiently, led to wide-ranging conversations about other aspects of work and life, including popular topics like marriages, video games, and national cultures. Echoing Christopher’s belief in the benefits of online interaction, Tyler, a community manager, suggested, “I think exactly because everything is online and we don't have person-to-person interaction, they tend to open up a bit more. Each person can know the other a bit better. Once that happens, the relations are changed a bit. Now, you are more a friend, not a colleague, with that person.” Describing how she opened up, Judy told me, “The first time that I got online, I was shy and I was talking only about work. But it took me just a few days to realize that you can talk about anything with people here [...] I didn’t know what to expect or I thought that there would be no interaction outside of work.” After her initial interactions, she was surprised to learn that the conversations with colleagues were not limited to work-related issues. Like

Judy's, the accounts of early interactions demonstrated surprise among newcomers as personal assumptions about online work were challenged. One newbie told me, "Working with co-workers? Having relations with a company in the U.S.? Completely different than I expected." The expectations for work online were variously described as cold, isolated, and monotonous, but newbies found shared interests and work-related support with friendly peers and managers.

**The Centralized Onboarding Program**

The orientation sessions provided by the company did not dispel the notions of cold, isolated, or monotonous work, but instead conveyed the company and its technology as the most salient interactional presence in the work of community members. Completing the onboarding program myself, I was given no indication that peers played a significant role in work and leisure within the community, this despite the stated goals of the program to "understand what it's like to work on actual projects, test our tools, and learn the basics needed for future development" (Field Notes, Community Training Center). In fact, there was little mention of community interaction at all, save for a short rule about behavior toward peers. According to one orientation leader, "Also, you need to act professionally and politely toward the other researchers and also your managers" (Field Notes, Community Training Center). This was the first indication that work involved any interpersonal interaction and it came toward the end of the onboarding program. However, newbies did not work for long without exposure to collaborative rhetoric. As indicated above, they found such material apart from the official, company-

led onboarding program, located in the chat rooms of the messaging platform, in project spaces, and in community-led training sessions.

The language of the official onboarding program conveyed shared organizational membership between company and community. This was apparent in sessions and literature focused on company policies, which characterized the community as "structured like a traditional workforce" and offered workers the opportunity to become "a valuable member of CrowdInc." In one onboarding session, joined by nine other newbies, I was given a brief history of CrowdInc, focusing on the interrelated intentions of the founders to provide work for the community and services for its customers. In pursuit of this mission, one of the company's goals was to "promote community engagement" in the development of their products. We were also introduced to the promotion schedule, where the orientation leader noted that industrious workers "here in the company" managed to "move up in the company very quickly." She was describing fellow orientation leaders who have ascended the community promotion ladder rather than employees at the head office. Finally, encouraging us to take seriously our training program, she noted "people are watching you once you come into the company" (Field Notes, Crowd Training Center). The onboarding program extended an invitation of organizational membership, one that must be renewed through continued performance.

Further, workplace interactions were construed as mostly between the individual worker and the firm's technology. In the following example, the leader of a project-specific orientation session focused on the importance of checking information against "our database" maintained by the company. He demonstrated, "You take the [data], go to

the tool, and we need to see if there's a duplicate [...] In cases in which you have [data] like this and it appears here that it already exists, please just skip that [data] since it's already added to our database. We do not need it again" (Field Notes, Community Training Center). If problems arose while learning these systems, the leader suggested reliance on instructional material provided by the company. In response to a question about completing timesheets, he said, "You can see how you can create a timesheet in the instructions, so you can review it later, but I will show you now. You have also a screenshot there that can help you" (Field Notes, Community Training Center). Work process and troubleshooting descriptions like these formed the core of the orientation and indicated to newcomers that consequential information transfers were between worker and firm, mediated by the firm's database technology and written material.

In framing the work experience, the onboarding program placed strongest emphasis on efficiency of the company's products and process. One orientation leader explained, "[Software tool] is an awesome tool. It was created by the developers in CrowdInc and the tool is designed to help you work more efficiently and to make your job easier, actually" (Field Notes, Community Training Center). This theme, that the firm's software engineers developed efficiency solutions for workers, is one I heard frequently during the onboarding process. It was often noted that the engineers relied on regular feedback from the community. The orientation leader stressed that workers should submit support tickets upon encountering aspects of the firm's tools that appear broken or inefficient. Likewise, descriptions of work tasks were framed as recommendations for speeding up the data acquisition and entry processes. The training program suggested

familiarizing ourselves with keyboard shortcuts to minimize search times, offering, "Know how to use shortcuts on [software tool]. You open thirty tabs and if you're a newbie or someone who isn't used to working on computers, you're going to manually click and lose time clicking between tabs." We were told to adopt these skills in order to pass the orientation test and begin working on projects.

The distinction in employment status between employees and community members was never formally addressed, but one orientation session included brief discussion about the issue. At one point, a newbie asked several questions in the chat room that accompanied the video conference: how did the company handle work assignments when there wasn't enough work to go around in the community? Would workers still get paid or earn promotions on a regular timeline, even if they weren't working? The orientation leader used the questions as a prompt to discuss employment status, focusing on the single difference between employees "in the headquarters office" and independent contractors in the community. She told the group, "We only get paid for the work we do, not the time we wait, and this is the distinction." According to the onboarding leader, this distinction, being paid on the basis of work completed, mattered little except for the purposes of tax law. At this point, I was surprised to learn that the leader was a community member like myself, but also intrigued by her minimization of difference. After all, I knew firsthand the various benefits guaranteed to employees at the head office and absent from the experiences of community members, including health insurance, paid leave, and equity compensation.

**The Community Shapes Onboarding**

In addition to the supportive atmosphere of the chatrooms discussed earlier, I discovered informal sources of socialization that developed within the community. In a professional development session following the official onboarding, a community leader informed the newbies, "This is a very, very friendly place, so whatever you're used to in your countries, forget about it. Here, all teams do not compete with each other, but share all the knowledge they acquire, all the tools, all the experience, and the feedback" (Field Notes, Community Training Center). He urged community members to contact their managers when problems arose rather than risk working inefficiently, saying "Managers here will love you if you ask them questions, not the other way around." Similarly, in conversations with managers and in chat rooms, I frequently heard recommendations to record the work process and send the recording to a manager for detailed feedback. With these recordings, the goal was for community managers to teach process improvements by seeing firsthand examples of inefficiencies. Without guidance from employees at CrowdInc, one community manager formalized communication through regular surveys to his teams, "implemented 90% of their ideas," and then followed with additional surveys to gauge how the changes were received.

Advocacy for greater interpersonal communication was evidenced in the project homepages, which community managers constructed to suit the needs of their projects. Strikingly, nearly all such project homepages stressed the importance of communication throughout, focusing on the necessity of asking questions, working together on problems,

and the value of engaging with managers. Below, I've provided a representative excerpt (emphases in original):

> **Communicate regularly** - our door is always open to assist or listen to you. If you have an issue, need to talk or just want to say hi, please feel free to ping us or send an email. We are here to help and value every opinion you have.
>
> **Please ALWAYS REMEMBER**……
> - This is a team sport and we are in it together
> - Everyone has an important and valuable position
> - Never be afraid to ask for help, help out teammates, share resources and provide feedback
> - Treat others with respect!
> - If you think we made a mistake, tell us. We are not robots and need help just like you.
> - ALWAYS ask questions. **Small mistakes make BIG impacts.**
> - Your commitment and dedication to the project is appreciated.

Like the homepages, professional development sessions emphasized the centrality of teamwork in project work. On one occasion, after hearing him advocate for greater communication during a training session, I messaged Jerry to learn more about the community's approach to socialization. He had just told my group, "Don't forget to ask. Please, if you have trouble, ask us. Heed our call." I learned that community leaders were working with human resources employees at CrowdInc to better select job candidates who would adapt successfully to the collaborative culture they were trying to promote — in other words, to find those who would seek guidance as newbies and become collaborative team members. He said, "I recently implemented some new processes that combine [onboarding] and HR for even better selection of the new hires :D [...] In that sense, we try to create a profile that is best suited for this job, to help HR select better candidates and therefore increase the success of passing the [onboarding]. I always take quality over quantity" (Field Notes, Community Training Center). Jerry and his

colleagues were attempting to further shape the training and hiring process from their position in the community.

Community leaders hoped to organize the work as a "team sport," and so tried to instill habits of proactive feedback and engagement from the beginning, whether through selection or their own socialization efforts. Tyler told me, "It's much easier for me to start from scratch with the new researchers and make them understand from the beginning that they do their best work for the community. Besides the community growing and having more projects and work, they will also grow with the company." Challenging assumptions held by newbies, Stephanie emphasized the care required to do quality work for CrowdInc and, in turn, produce more work for the community. She told me, "We do try to involve them in the entire process because they *care* more that way and they are not doing the automatic job of, like, collecting data and that's it. Thinking outside of the box. Involving them in thinking of ways to improve something even when it doesn't need any improvement." The work of "thinking outside the box," according to these managers, was fundamentally social, requiring teamwork in project groups and regular interaction between managers and workers.

While my application and training process included nothing suggestive of teamwork, I saw their emphasis on collaboration reflected in the experiences of new recruits. I interviewed a newbie named Ethan who was enthusiastic about his prospects as a new member of the company. He told me, "When I noticed that they will help us, whatever we need, whatever problem we have, I thought, 'This is a good company.' I want to work for this company. They train their employees, they work with their

employees, they invest in their employees." Of course, the individuals with whom Ethan was engaging were not employees of the head office team, but rather community members introducing newbies to the ways of working in the community. The manner in which they pursued this goal promoted the unified vision of one company and community.

**Summary: Integrating Company and Community at CrowdInc**

At CrowdInc, the centralized onboarding program worked to harmonize the community and the company. From their earliest exposure in the application process, workers within the community learned to consider themselves parts of the whole rather than members of an independent entity. As one newcomer explained, "We are a new company. We have new clients. We're going in the right direction." The use of bridging language like "we," "here in the company," and "people are watching you once you come into the company," conveyed integration between the community and company. The only deviation from this pattern came in a brief discussion about employment status, which relegated the employee-or-contractor distinction to one of legalese rather than something relevant for the organization of work, benefits, or membership in the firm.

Further, community leaders responded to the onboarding process with their own collaborative project, working to reorient the primary interactive space from the firm's platform to the project team. As Jerry said, "I feel a part of both the community and the company and I'm trying to do the same for the researchers, to make them feel a part of the company." In experiencing the "atmosphere of the rooms," newcomers learned to call

themselves newbies, to ask questions of their peers and managers, to share their knowledge in chat room conversations, and to interact socially as familiar colleagues. In this socialization process, the imprinting of the occupational community on the work experience reinforced identification with CrowdInc among crowd workers. As Judy told me, "I see myself as a part of this community, this big, huge, and awesome community, but also, being part of this community, I feel like a part of the company." This contrasts the pattern of socialization and its effects at OpenTech, to which I now turn.

**OpenTech: Joining a Community, Working with the Company**

> "It seems to resonate with people who work here that the collaborative effort of building the culture of OpenTech is at least as important as the collaborative effort we engage in to build our projects. There's a line that makes the rounds in the Valley every now and then: culture eats code for lunch. That's very, very true and that's one of those things that you ignore at your peril."
>
> - OpenTech Employee Onboarding Program

I entered the OpenTech community after first interacting with employees as a participant observer. Although I underwent a formal application and hiring process at CrowdInc, the OpenTech community did not require any authorization to observe the work of community members or to count myself as a fellow contributor. The openness of the community to new participants meant that, at a rudimentary level, anyone could make a credible claim to affiliation with the firm despite never having been vetted by its representatives. To match the accessibility of community membership at OpenTech, individuals encountered multiple options for joining, as Jessica, a community manager described, "Maybe someone would comment on the message board or maybe, on the [task management software], they would enter a bug and they will keep on helping. But

there is no standardized or central place for them." Similarly, another explained, "Maybe you'll find a mailing list. Maybe it's dead or not. It's not something OpenTech has organized." In contrast to CrowdInc, joining the OpenTech community as a volunteer was not framed by automated, employee introductions or a centralized onboarding program. Rather, there were several pathways through which one first experienced the occupational community.

Following a common approach, I made an account on the OpenTech message board and joined one of several chat applications, each populated by some mix of contributors and employees. I began by reading on-going and past conversations to familiarize myself with current events, as well as messaging community members to speak informally about their projects. I learned that this approach was not uncommon among new contributors. Tiffany, a community translation manager, recounted her own experience with this process:

> "You had to write a post to introduce yourself. I introduced myself in the [customer support] section of the forum, but then my colleague came to me and asked me, 'Hey, we have this other project. Please come to [message board] and help me translate it.' There were quite a lot of [translation] strings. I was a bit overwhelmed. They didn't put me in a hurry, but I wanted to finish it as soon as possible. It was the first time that I used the tool, which was an OpenTech version of [translation tool]."

Not unlike the newbies at CrowdInc, Tiffany was overwhelmed by her first responsibilities to the OpenTech community. Likewise, she found guidance from a more experienced translator, who sent her a private message on the message board. He had an instructional style she would later emulate in her own interactions with newcomers. "My supervisor was very supportive [...] He always explained his changes, he didn't make me

feel that I was just someone who types away [...] I'm trying to pass it down to the people I'm training." When describing their onboarding experiences, many spoke of their early reliance on peers. A newcomer named Ryan told me his local group had a mailing list, "so if you had any issue with anything, you want to explore Python, you want to explore Javascript, stuff like that. You just have to shoot an email or ask that particular person to help you out or to connect with the other person." As at CrowdInc, informal instruction between peers and mentorship was common at OpenTech.

However, in a pathway distinct from the more collaborative approach, newcomers also began working on projects without engaging any existing community members, as OpenTech's task management software included public lists of problems to be solved and ways to support the firm's mission as an individual. This is what Jessica meant when she said, "maybe on [task management software] they would enter a bug, and they will keep on helping." Employees of the firm supported this method sporadically by marking suitable problems for newcomers to address. Tasks could be completed with limited interaction between peers, especially if a newcomer already possessed the requisite skills. Finally, for some individuals, these introductions to the digital spaces of collaboration and project work occurred only after meeting community members in a local group, such as a club on a college campus or a regular meeting for computer programmers in a nearby city. As a result, there was no singular experience of joining.

Unlike the centralized training center introduced by CrowdInc, OpenTech adopted a decentralized approach to onboarding community members, relying on homepages for local and functional groups. The OpenTech instructions for development of these groups

began, “Having a great experience as a newcomer is the key for success and growth. Having a clear documentation linked from your homepage should be the first step.” In part, decentralization was a response to the diversity of programs in the company, where functional groups and local teams were engaged in many different roles. It was also a response to the diversity of locales, as OpenTech encouraged community members to tailor training programs and contributor pathways around the needs of their hometown, region, or country. Finally, it was partly ideological, drawn from the belief that diverse groups outside the company should become affiliated with OpenTech on their own terms. In attracting and organizing community members, the central challenge for OpenTech was fostering commitment to the corporate mission, while simultaneously retaining a diversity of perspectives that acted as counterweight to the homogeneity of the “sort of classic, Silicon Valley programming experience,” in the words of one leader at OpenTech.

Functional training, such as company-specific techniques for translation or software development, was left to the relevant teams rather than coordinated through a centralized onboarding program. This approach was only minimally directed with a light touch from employees at OpenTech. For instance, the company provided several training programs and a handbook for individuals who were involved in community building activities, in order to “train the trainers” and indirectly shape the socialization process. It also provided a structured onboarding program for new employees, where OpenTech’s approach to the community was explained alongside details of its culture. The result was the spread of culturally relevant artifacts and shared language that emphasized social

mission, corporate goals, and "bizarro-land terminology" (Field Notes, Employee Onboarding Program) used by employees at OpenTech.

**T-Shirts and Organizational Identity**

Motivating initial commitment and promoting organizational identity were intertwined in the form of t-shirts. Like many community members with whom I spoke, Peter first connected with other contributors through an OpenTech website, one focused on university students. Each interested in OpenTech's products, these students were located around the world and soon Peter had a network of people with whom he could discuss OpenTech and open-source software. As a participant in this network, he also provided direct feedback to the company about his experiences using their products. In the eyes of his peers and OpenTech employees, these contributions represented acts of membership in the community and affiliation with OpenTech.

On one occasion, he was delighted to receive a gift from the company in response to his contributions. "OpenTech sent 1,000 t-shirts to everyone and I was really happy because the t-shirt was kind of cool, actually... [Pause] Let me find it here. I think I have it in my closet. Here it is! The t-shirt reads, 'youthful, energetic, tenacious, intelligent students.' Basically, it was really empowering to see that you could get rewarded by simply sharing your experiences with software." Because the company distributed small gifts to motivate young people, many newcomers received tokens, like this t-shirt, as their first salient memory of community membership. A community organizer in southeast Asia told me, "We are targeting the undergraduate level. They are interested in the

branding, the toys, the swag." One employee mentioned that he regularly sends OpenTech stickers to help retain first-time contributors and show his appreciation for their work.

Peter's experience with the t-shirt extended beyond initial motivation. As the network of students disbanded, the t-shirt helped sustain his involvement, which consisted of reporting software bugs and providing feedback in OpenTech's task management software. After helping to fix bugs in the software code for an OpenTech project, he saw his name in the product's credits page.

> "I kept doing that for a couple of months, even after the group was discontinued. I kept sharing my experience with my friends. I wore that t-shirt almost everyday at the university. People say, 'Hey, that's a very cool t-shirt! What is that?' And I told them, 'this is the t-shirt I got from OpenTech!' I kept sharing that spirit, to invite other people to use the [product]."

A year later, when seeking a new role in the community, he proudly shared the story of his t-shirt marketing. Apparently impressed with his initiative, an employee offered to entrust him with greater responsibilities.

As it turned out, the t-shirt had broader significance in the OpenTech experience than Peter's anecdote might suggest. Like the staff of many software companies, OpenTech employees and community members clung to a perennially casual wardrobe of hoodies, jeans, and t-shirts. Within this framework, I found the varied symbols of time spent in an evolving organization with many diverse programs and adherents all over the world. On one of my first observational days at the headquarters office, I heard talk of an employee who owned a ten-year-old t-shirt with a particularly rare design. This design

was created for the local community group of a small southeast Asian country and incorporated the coveted iconography of the company's early visual brand, but stylized to incorporate the local aesthetic of the country. I saw dozens of different t-shirt designs like this decorating hallways, meeting rooms, and people, with the latter becoming a topic of conversation more than once. T-shirts were visible signals of organizational identity among employees, with particular designs signaling the interest, expertise, or status of the wearer.

One way in which community members adopted the organizational culture of OpenTech was through their dress. Like employees, long-time contributors retained t-shirts from their formative days as community members. As with the various baseball caps that signaled experiences among fishermen (Miller and Van Maanen, 1982), these totems were proudly worn to events with fellow community members and employees, as markers of their veteran status or signals of their work on cherished projects. I saw the embrace of this pattern first-hand at an event attended by both community members and employees. Wearing colorful designs from all periods of the company's history, the two groups were indistinguishable, save for the occasional outsider who wore a special badge denoting visitors' status. Community members with security clearance wore no such badge and were free to blend visually with employees. Although I wore the visitor's badge, I earned my first t-shirt through attendance at this event. Sporting one's OpenTech t-shirt in laid back, yet studied fashion was a practice shared by the organization and occupational community alike.

**Shared Language, Salient Boundaries**

T-shirts were not the only markers of organizational identity to spread throughout the community. Newcomers within the community learned to use the language of OpenTech, including much of the occupational jargon and company-specific terminology used by employees. They conceptualized the relationship between firm and community similarly as well. Hoping to learn the official company perspective on this relationship, I attended corporate training sessions for new hires. In the onboarding program, I heard much of the language that had been present in my conversations with community members and employees. Below, the leader of a new employee onboarding program construed the firm as a "community of communities" and pointed to the experience "within the organization internally."

> "OpenTech is not just a company. It's not just an organization. It's also a community. And more importantly, it is a community of communities. Even within the organization, we have very different cultures, needs, and groups between different parts of the organization internally and that only gets more interesting and more pronounced once you grow out into the larger OpenTech world […] It behooves us as members of that community, particularly as employees, who are very much a privileged set of people in that community, to be effective at not only communicating with each other, but at making sure we connect and empower each other."

His statement reflected the prevailing wisdom of a privileged position "within the firm," encouraged new employees to extend communication "out into the larger OpenTech world," and enacted the organizational boundary around employment. As at CrowdInc, the employee hoped to convey similarity between employees, the firm, and the community of non-employee workers. His approach in this regard was part of an on-going project at OpenTech to refashion the relationship between employees and

community members, one that had apparently fragmented in recent years. In discussions with employees, it was not uncommon to hear claims of distrust or doubt, such as: "I can't trust the community when we have something urgent. Having results at a certain time is hard for the community" or "It used to be that we thought the way we could win would be to leverage contributors. Some engineers in the company, who have been there for a while, disagree with this sentiment these days." A new understanding of the firm-as-a-community emerged as an attempt by OpenTech leadership to build a shared identity. An employee in a leadership role explained the logic when he told me, "We used to think about the community as one [. . .] They're really distinct groups of people, actually." In recognizing these distinctions, the phrase "community of communities" was meant to signal a multi-faceted collective comprised of crowdsourced workers and the firm.

At the same time, the onboarding leader's effort to convey similarity acknowledged, whether intentionally or not, the distance between the experience "within the organization" and that of the larger world. A new employee who had recently attended a different onboarding program said, "When I was onboarding in April, I felt like you could see even who is familiar with open source and who is not. A lot of people who have been hired don't understand community. They just see it as a resource they can take and work with and tell them what to do." Despite the project toward greater integration, distinctions were made salient as employees were introduced to OpenTech.

Although they did not attend that particular onboarding program, non-employees encountered OpenTech's language as they entered the community and used it to make sense of their relationship to the firm. Stanley, a community leader, used similar language

to describe communication problems. “One of the biggest problem is also getting in touch with updates because OpenTech is very huge. It's a community of communities. And they often do not communicate, also between teams of OpenTech itself. So it can be difficult to get updates sometimes or get in touch, to organize something.” Stanley not only mimicked employee’s depiction of the firm as a community, but also signaled his recognition of OpenTech as an entity “itself” that stands apart from the community. Claims of poor communication between the two were similarly common.

The distance stood as taken-for-granted knowledge of the relationship between company and community, with countless interactions highlighting two “sides” of the work experience. For instance, referencing the firm’s decision to cancel a project, Ryan told me, “They had to shut down the entire project from the OpenTech side, so the project was handled from the community side. It was only the community that would take care of [product]. It was dead on the OpenTech side.” A boundary between the firm and the community, including an internal and external conception of the firm, was nonetheless salient despite the rhetorical similarity with which employees and community members referred to the firm.

**Decentralized Onboarding at OpenTech**

As mentioned earlier, local and functional groups shouldered the responsibility of teaching community members how to work and think in the “larger world of OpenTech,” the space constructed as external to the organizational “side” of OpenTech. Local and functional onboarding programs emphasized OpenTech’s mission, relying on language

drawn from employees and the OpenTech website, but grounded membership in the community rather than the organization. On the welcome page of one community website, titled "[Country X] Association for OpenTech Support and Translation," a description read: "We are a group of volunteers who are dedicated to translation, support and promotion of OpenTech products and derivatives" (Country X OpenTech Onboarding Website). In describing the onboarding process for this group, Tiffany told me about their process for newcomers. "We have the localization guide that we have been developing recently. We have all the rules written down, so I invite them to read the guide. OpenTech doesn't have any say in this. We are independent in this regard." Like this group, the constituent parts of the OpenTech community cultivated work-and-locale based identities always viewed in relation to the firm.

I followed the onboarding process found in one local group, the leaders of which hoped to expand OpenTech's presence in their region by welcoming new members to the community. Relying on the language and literature of OpenTech, the leaders built their own website to streamline the process of integrating new members. Upon completing the process, newcomers were more formally introduced to community members, perhaps receiving some token of appreciation, such as the OpenTech t-shirts or stickers discussed earlier. The homepage began with the language of OpenTech's mission statement, drawn from its website with minimal changes. Following a description of the mission, the community's onboarding page explained the process for newcomers, as shown below:

> **What are you going to do?**
> Celebrate this software freedom day 2017 with OpenTechies all around the world. OpenTechies from [Country Y] OpenTech community started this small website where

> you can easily become [a] contributor to OpenTech community by the end of day. In this series we will be touching the basics of various contribution areas. Here we don't need very high level coding knowledge to get started. Interested people can contribute in large number of ways.

From the perspective of newcomers, the website served as a localized portal from which to access globally-available information. The component pieces of the onboarding were broadly accessible to anyone who visited OpenTech's various websites, but this local community developed an onboarding process tailored to the needs of its local users, then overlaid upon the resources of the firm. Upon completing the onboarding steps, the website encouraged, "Congrats. You have completed all the steps on this journey. From now [on] you can choose your own path and start contributing." (Country Y OpenTech Onboarding Website). Onboarding processes like this one led to interpersonal relationships between new members of the local and functional groups and those responsible for their creation and maintenance.

As a traveler on a similar decentralized pathway, a newcomer named Silvia described her recent experience connecting with a similar local group. After spending months as a contributor through a university club, she entered into a regional network of contributors through participation in a company-sponsored event. Online connections soon followed from the event and thus began her involvement in organizing at the city and regional levels. Relying on the online message board and messaging platform, she described,

> "I got to know what's happening at the city level. What's happening in the group. I mean, how people are evangelizing and spreading the word about OpenTech [...] I got to know them. Even if I am in some trouble, or I need some help, I had an idea who to get in touch

> with. They were also better in guiding the new contributors. They gave a connected pathway. It was better when you have other people along with you."

While local communities developed their own systems for welcoming new members and teaching the routines of organization and occupational community, community members sought greater collaboration with OpenTech in these and other efforts. The downside of OpenTech's decentralized approach was referenced regularly by community members: limited interaction with the firm on projects. One individual in the Country Y community, who criticized the status quo for its limited interaction between community and company, worked to develop his own solution. Characterizing the existing socialization process, he told me, "There is no relationship between the contributor and the project at OpenTech. The pathway that I'm talking about solves these kinds of problems. It establishes a relationship with the project and the people are more involved with it." Longtime community members, including those who took on leadership roles, felt a responsibility to better establish connection between newcomers and the firm, as well as promoting the firm's mission.

**Distance Between Company and Community**

The pattern of socialization meant that community members often spoke the language, appealed to the values, and looked the part of their employed counterparts at OpenTech, but found their work identity to be primarily occupational rather than organizational, despite working closely with the firm over a period of years. Tiffany captured this dynamic succinctly when she told me, *"*My identity is strictly in the

OpenTech [Country A] localization team, but I come in contact with other communities. For example, the [Country B] community, which is very active. I think they have very similar feelings to our feelings. They work very much like us [. . .] They feel that the OpenTech mission has a real value in their country." Her identity-based connection to a similar community group was rooted in recognition of shared work experience and a common belief in OpenTech's mission.

Newcomers learned to identify most closely with those in their local and functional groups. When asked why they continued working with OpenTech beyond initial contributions, individuals cited their membership in the community. Tony, a community leader, explained, "I think for me it was more about the whole feeling of belonging to a community. And that's probably why I kept trying to grow the community." These relationships extended beyond involvement with OpenTech projects. John, another leader, felt that his local group continued to thrive because of its internal connections, even with less active work on OpenTech projects. "I'd have a hard time saying that I really identify in OpenTech either," he told me. "There's people that don't identify in it and they don't have anything that binds them to OpenTech anymore [...] It's people that have been involved with development before and still like the group of people that are involved with community, so they'll show up for that." These individuals saw themselves as affiliated with OpenTech, as their group retained the OpenTech branding, but felt strongly that their bonds were to local groups and the individuals therein.

Additionally, participants often remarked that the process of entering the community and contributing to OpenTech projects led to skills, or a "toolkit," applicable

within the occupation generally rather than the organization in particular. Thus, as compared to those at CrowdInc, the benefits of organizational affiliation were seen to apply more broadly to the work lives of community members. Kevin, a newcomer, referenced this occupational "toolkit," which had been developed through time spent as a community member. He described the contrast between work tasks for OpenTech and those at his full-time employer, saying, "The domains are totally different, the problems are different, but the toolkit, the things that you learn, are applicable across different problem domains. The things that I learn in the OpenTech community are things that I can apply at my work or that give me an edge over the others in the way I think or the way I present stuff."

Further, those in the OpenTech community regularly referenced distance in interactions between employees and volunteers, contrasted the flexibility of community members with the perceived rigidity of employees, and recognized divergence in values between the company and the community. These perceptions of distance were rooted in the socialization process. Drawing on memories from his earliest involvement, Jonathan, a longtime contributor, recalled his attendance at events in a local office of the company, saying "It was like a planning meeting that was basically [community members] and then there were some employees [. . .] But it was this weird thing where the employees weren't there the whole time and it was sort of like they weren't necessarily feeling like they were part of the community when talking about it. It was more just for volunteers." When I attended a similar meeting between employees and community members, I found the

latter reluctant to offer opinions and instead waited for employees to advocate on their behalf or introduce new ideas.

Early recognition of the distinction between employees and community members was common, but this recognition persisted even as individual community members earned opportunities to attend events and work alongside employees. In particular, individuals felt the need to achieve employee buy-in for their projects and validation of their efforts. Employees were seen to represent the official line of the organization and could grant privileges to the resources of OpenTech. For instance, I heard explanations such as, "Her perspective is very, very important for the project. I know that OpenTech employees are going to support me on this, so it's really reassuring" or "You need to get a team with volunteers and staff, who have insights about the project or product [. . .] It becomes handy to get things done."

Similarly, navigating a complex organization at first seemed impossible without guidance from "someone inside," as a community member told me, "You have no idea who is right because there are too many employees [...] When we have someone inside, if I need something about marketing for OpenTech, I ask him because he knows better than me. Now, I know the people to ask for different aspects." Individuals learned the value in making employee connections that were not granted automatically upon joining the OpenTech community. In this way, primary identification with the occupational community existed alongside pursuit of greater guidance from the firm and status markers of organizational membership, with implications for the labor process.

**Summary: Separation of Company and Community at OpenTech**

Whereas socialization at CrowdInc, shaped jointly by company and community efforts, actively produced an integrated organizational identity, the decentralized approach practiced by OpenTech and followed by its community supported the perception of distance between employees and community members, which persisted despite the rhetoric and symbols of shared identity. OpenTech's leadership endorsed a more unified understanding of a "community of communities," but the use of distinguishing language like "external," "someone inside," and "grow out into the larger OpenTech world," made salient important distinctions as newcomers joined the community. Particularistic onboarding programs, tailored to locales or functional groups, structured membership around these groups while relying on OpenTech's official, mission-oriented language to build occupational and organizational identity. As they sought greater guidance from OpenTech employees, existing community members made efforts to show newcomers the importance of gaining access to OpenTech personnel, offering a view "inside" the firm.

Still, the occupational community, comprised of local and functional groups where socialization, collaboration, and relationship building actively took place, served as the locus of identity, but with the mission of OpenTech as the guiding frame of reference. As Jonathan told me, "What has kept me around, I guess I would say, it's the people [. . .] OpenTech does attract a lot of very interesting and diverse, to a certain extent, people who are experts in the areas that they may talk about. And the mission. I cannot not mention the mission because I would say it does motivate me." Ultimately,

like Jonathan, community members identified with OpenTech's mission, yet felt removed from membership in the organization. At OpenTech, Community members were outsiders looking into the firm, with varying degrees of success at accessing its resources or influencing its direction.

**Discussion and Conclusion**

At CrowdInc, the socialization process developed organizational and occupational culture in an integrated fashion. This process relied on the work of community leaders, such as Jerry, who said, "I feel a part of both the community and the company and I'm trying to do the same for the researchers, to make them feel a part of the company." As a result, the occupational community was interpreted by crowd workers as the primary structure in the organization of their work, but the organizational identity of the firm was strongly felt nonetheless. For instance, employees were regarded as co-workers despite the limited communication between most community members and representatives of the head office.

In contrast, becoming a community member at OpenTech reinforced rather than minimized distance between the experience of membership in the occupational community and that of the employment in the organization. This process unfolded despite salient markers of shared identity and efforts by some employees to construe organizational membership as broadly as possible. Motivated by the firm's mission, those who joined the OpenTech community learned to identify most strongly with local and functional groups, as well as recognize and construct a boundary between internal and

external affairs of the firm. A common sentiment expressed around OpenTech was, to quote one employee, "we started using words like external and internal."

The chapter began by noting competing pressures around organizational culture in crowdsourced work. Aside from the typical arguments in favor of strong organizational culture, crowdsourced work may introduce additional impetus to shape culture beyond employees. Because there are symbolic boundaries that could prove an impediment to effective collaboration, we might assume that creating a shared organizational identity between company and community is important for sustaining interest among non-employees, for motivating work tasks that are taxing or marginalized, or minimizing the appearance of transactional relationships between firms and workers. However, there are also reasons why firms may be more restrictive, choosing instead to create distance between company and community, in the development of an organizational identity. First, firms have an interest in guarding their organizational identity to satisfy employment law, which requires that contractors and volunteers be treated as distinct from employees. Second, firms strategically construct public, organizational images and so may limit who can speak for the organization. Third, firms have security concerns regarding data privacy and strategic planning. Lastly, employees of the firm may guard their organizational identity from outsiders as they would their occupational identity.

The findings on socialization presented in this chapter point to the various ways in which firms and crowd workers construct and interpret firm boundaries. As was evident at CrowdInc, firms have the ability to successfully promote an integrated narrative of company and community and thus develop a shared organizational identity among

employees and crowd workers. While these groups may experience this identity in different ways, this chapter shows that community members responded in line with the firm's efforts toward inclusion. This finding runs counter to the hypothesis that firms will construct a wall between company and community in the socialization process. Indeed, despite different results, there were strong indications that OpenTech likewise sought this integration, including employees' efforts to construe the firm as a "community of communities" in their onboarding program. However, this rhetorical strategy evidenced in the onboarding program did not complement the infrastructure of collaboration between firm and community, with negative implications for developing shared organizational identity.

Further, in line with previous research on occupational influences within companies, socialization within the occupational community may deviate from or complement the official program of the firm. Within the CrowdInc community, questions that arose during the course of work were handled through interaction with the occupational group, via strategies taught to newbies by the group rather than the firm. This process supported a productive organization of work among the occupational community, the collaborative realities of which were largely absent from the official onboarding program and obscured from view of the firm. In contrast to the self-reliance of the occupational community at CrowdInc, crowd workers at OpenTech looked toward the firm and its representatives as sources of guidance. Where shared organizational identity was limited through deviation in the pattern of socialization, the occupational community at OpenTech saw interaction with the firm as a source of value for their

efforts and an avenue for resolving conflicts. Although not addressed here, the result was a strained relationship between OpenTech and the occupational community, which heightened demands on the employed staff of OpenTech and undermined commitment among community members.

In outlining the socialization processes found at CrowdInc and OpenTech, this chapter set the stage for subsequent analysis of the labor process at these two firms. In the next chapter, I rely on this foundational understanding of occupational and organizational identity to argue that management of collective identity, by occupational members and employed staff,  is consequential for consent and control in crowdsourced work arrangements.

# Chapter 5: Collective Identity and the Labor Process in Crowdsourced Work

Managers of formal organizations often try to balance autonomy and control of their employees. The trade-offs inherent in this balancing act are acutely felt by companies reliant on crowdsourced work and online communities, where external workers complete tasks on a contingent basis. Compared to most bureaucratic organizations, volunteer and contractor communities operate with less centralized control (O'Mahony and Lakhani, 2011). This relative lack of control presents a puzzle in understanding formal organizations that rely on these communities for their core and peripheral work tasks.

On the one hand, firms want crowdsourced work to surface knowledge previously unknown or inaccessible to the firm in a cost-effective way (Boudreau and Lakhani, 2013). NASA's experimentation with open innovation illustrate these benefits at the highest level of science and engineering, where non-experts solved problems on the basis of unconventional engineering knowledge (Lifshitz-Assaf, 2017). The autonomy of these hobbyists, who pursued overlooked solutions, helped accomplish the goals of the organization. On the other hand, for-profit and nonprofit firms must generate expected value on a predictable timeline and so face various pressures to maintain control over the efforts of outsiders, to insure their work is legible and useful to the firm on its schedule. To learn how these novel work arrangements allow for autonomy and control, this

chapter explores how two firms motivate the participation of external workers and achieve adherence to standards in the absence of employment relationships.

Regarding the balance of control and autonomy, scholars have long been interested in the extraction of surplus value in the labor process. To put it a different way, sociologists of work often ask why workers work as hard as they do and, in some cases, consent to their own exploitation. The most influential work focuses on ways in which workers act as willing participants in the labor process, working beyond what might be reasonably expected by their compensation in order to meet the expectations of managers. In particular, sociologists have tracked these dynamics alongside macro-level changes in the economy, from manufacturing, to service work, and now to contingent work arrangements. In each period, scholars developed new theories to account for changing relationships among workers, between workers and managers, and between workers and customers.

The motivating statement comes from Burawoy (1979) in *Manufacturing Consent*, which provides a situational account of the labor process. Responding to Marxist structural critiques, Burawoy (1979) focuses his attention on the work process itself, as well as the environmental changes affecting work on a shop floor. Responding to production quotas, workers engage in productivity games that motivate their commitment, increase their output, and obscure the hand of management in driving production. Their consent is a function of participation in these games, resulting from the social and psychological benefits of "making out" among peers on the shop floor, rather than overt response to managerial directives. Shared organizational and occupational

identities are taken for granted in this account, as Burawoy (1979) considers the labor process within an industrial society, where employment relationships form the foundation of work.

Burawoy's (1979) theoretical foundation motivated a rich tradition in the study of work, occupations, and the labor process. Unsurprisingly, most situational accounts of consent in the labor process focus on work within standard employment relationships. Nonetheless, these studies recognize shifts in the labor process that accompany a transitioning economy, one moving from Fordist-style manufacturing to post-industrial services and knowledge work. In this shift, production quotas on the shop floor are replaced with customer interactions, collaborative innovation, and project-based work. Broadening our understanding of the labor process in post-industrial settings, Kunda (1992) focuses on the role of organizational culture in motivating productivity within a high-tech firm, Van Maanen (1990) writes about the emotional management of amusement park employees at Disneyland, and Hochschild (1983) studies the emotional labor required of airline workers. Surveying these and other works, Alvesson and Willmott (2002) conclude that identity regulation has become more central to the labor process, with predominance in knowledge-based industries of the service economy.

To complement accounts of identity regulation and consent, Mears (2015) provides a much-needed updating to labor process theory as the economy shifts, yet again, toward contingent work and non-standard employment. She focuses on the relational and boundary work common within one setting of precarious work: the VIP rooms of nightclubs. In this setting, working for free, or without monetary compensation,

requires that female party-goers and promoters navigate boundaries of intimacy and conceptions of work. Mears (2015) argues that relational work (Zelizer, 2012), or efforts to appropriately link types of relationships with certain economic exchanges, underlies the VIP work arrangement, creating circumstances in which consent is achieved despite practices that VIP workers may otherwise reject. This includes the notion of "family" cultivated among like-minded VIP workers, as well as the perception that work in the VIP room is a fun, high-status leisure activity with potential to meet wealthy patrons. As it often fails when notions of family or leisure are called into question, consent is seen in Mears's (2015) account as an achievement produced through ongoing relational work.

Noting the implications of her findings, Mears suggests, "as the labor market becomes more casual and work moves outside of permanent contracts and stable organizations (Kalleberg et al. 2000; Smith 2001), new models of the labor process and its relational context are needed" (2015:1101). In this chapter, I heed Mears's call and direct attention to the labor process of crowdsourced work. Given the growth of alternative work arrangements, particularly those that rely on the Internet to coordinate work among firms and external workers, other models of the labor process are indeed necessary to understand control in the absence of employment relationships. Shared membership on the shop floor provides the context within which a culture of "making out" is formed (Burawoy, 1979). Likewise, Mears (2015) shows the significance of intimate and familial relations in supporting the labor process among VIP workers. In contrast, the bases of shared identity are less obvious to observers of crowdsourced work arrangements, where membership in formal organizations and interpersonal interactions

are absent or obscured. Thus, following Burawoy (1979), we might ask why, given their tenuous relationships to firms, do crowdsourced workers work as hard as they do?

Like earlier studies of the labor process, I answer this question by starting from the premise that consent is produced rather than given. However, this chapter posits an alternative model from that of Burawoy (1979) and Mears (2015), one that focuses on collective identity formation (Gamson, 1991) between occupational communities and organizations. Conceptualized in the social movements literature, collective identity is "an individual's cognitive, moral, and emotional connection with a broader community, category, practice, or institution [...] a perception of a shared status or relation, which may be imagined rather than experience directly, and it is distinct from personal identities" (Polletta and Jasper, 2001). In the present account, organizational and occupational identities are accomplishments that in turn produce consent. To develop this argument, I first show the ways in which occupational communities provide salient, valued identities, as variously substitute and complement for organizational identity. Second, I show how the firm supports these collective identities through the use of sociotechnical infrastructure, such as nondisclosure agreements and product feedback systems. Third, I show how the accomplishment of collective identity enables the extraction of surplus value from labor. Along the way, I address alternative explanations that might suggest more instrumental motivations on the part of workers.

Understanding the labor process between online communities and companies is important for several reasons. First, because these arrangements rely extensively on information and communication infrastructure, they are of theoretical interest in the study

of sociotechnical control more broadly. As Turco (2016) finds, innovations in information and communications technology, particularly in the form of social media platforms, help to set new expectations and enable novel practices around identity management in high-technology companies. Additional research is necessary given that workers face increasing algorithmic management in the absence of employment relationships. Second, as work is increasingly detached from employment relationships, the standard theories of the labor process may be inadequate to capture influences, such as those that are occupational, that exist outside of formal organizations. For instance, Mears (2015) shows how working for free depends upon relational and boundary work, with emphasis on relationships that form wholly apart from those between managers and workers in formal organizations. Explanations that are familiar to sociologists of work, such as production games, monetary incentives, and coercion, are irrelevant or of limited significance in the work context she describes. Third, as novel forms of community increasingly exert influence on organizations, we must understand how workers experience the relationships between firms and online communities (O'Mahony and Lakhani, 2011).

Through observation, interviews, and archival data from two organizations (CrowdInc and OpenTech) and their communities, I show how the labor process depended upon collective identity and boundary objects (Star and Griesemer, 1989), yet did so in different ways. At CrowdInc, workers were compensated through a piece-rate incentive structure, engaged in low-skilled tasks like data entry, and socialized in a way that produced integration between occupational and organizational identity. At OpenTech,

workers generally did not receive monetary compensation, were engaged in a wide variety of high-skilled tasks, and were socialized in a way that produced contestation around occupational and organizational identity. Additionally, unlike the open innovation schemes at NASA or other organizations, these firms relied on communities to conduct both core and peripheral tasks across functions and departments. Thus, questions about control and autonomy of workers could not be siloed within the organizations at discrete points in time, but instead permeated the organizations over time. Finally, in the comparison that follows, similar outcomes result despite variance in compensation schemes, skill level, and socialization between these two cases. In this way, the present explanation is applicable to both compensated and uncompensated work and so provides something of a bridge between earlier studies of employed consent (Burawoy, 1979) and more recent work on non-standard work and the hybridity of work and leisure (Mears, 2015).

**Identity and Consent in the Crowd: A Tale of Two Occupational Communities**

As we saw in the preceding chapter, firms and communities socialized external workers in distinctive ways, yet the shared result was that workers were committed to occupational and organizational ends. On the basis of their introduction to the work process, workers in the CrowdInc community saw their membership in the community as granting organizational membership as well. They regarded the community as the locus of teamwork, where one found the bulk of interpersonal interaction, but gained this understanding after completing the firm-led orientation process, which constructed their

status as organizational members. In contrast, the volunteers working with OpenTech, having participated in on-boarding programs particular to their functional and local groups, recognized distance between their communities and the firm. Still, these volunteers embraced aspects of the firm's culture as their own and many had regular interaction with the firm's employees. These differences had implications for the way consent was produced and control was enacted in the relationship between firms and communities, but the management of collective identity was salient in both settings.

**Control at CrowdInc: Working Together in Service to the Company**

From the perspective of the company, the labor process challenge at CrowdInc was promoting careful attention to detail in monotonous work, yet allowing for unstructured search by workers. When it sold services to clients, the company committed itself to providing high-quality information with fast turnaround. This included hard-to-reach information that the standard methods of automated search could not provide. Reliable, quick, and accurate information were the service goals toward which the company strove. While the company relied in part on software tools to source and verify information, their strategy for meeting clients' expectations around accuracy relied, for the time being, on workers within the community. For their part, workers needed to carefully parse data on the Internet, but do so on tight schedules.

To meet the expectations of the firm, community members appealed to notions of collective efficiency, community ingenuity, and company growth. These notions justified high-quality work beyond what might be expected given the piece-rate incentive

structure. In particular, community members regularly worked past their allotted hours and extolled the virtues of "extra work" or going "above and beyond" the task requirements. Their commitment was motivated by a sense of shared effort in the community, one comprised of three parts: collective maximization of efficiency, belief in the ability of the community to provide a unique service to the firm, and interest in growing the company with which they felt integrated. Sarah combined these three components when she told me:

> "It's really nice when you have a growing project and you see the client is satisfied. You're doing it not just for yourself, basically. That is the point. If you're doing it for yourself, just for money... I mean obviously everyone is doing it for money, but if I'm [working] correctly and O.K. on a project, I know the client will be satisfied and the contract will be extended and everything. And everyone will have work. That's what I'm telling you about the community. Every one of us needs to make it go normal."

As Sarah conveys, the collective effort to "make it go normal" serves to maintain and expand service contracts, which help grow the company and provide work within the community. To shape this collective effort, the company offered a clearly defined goal structure and quality expectations to the community. Unlike the limited guidance from OpenTech, CrowdInc's expectations on projects were reliably communicated from the head office to managers within the community. The effort from CrowdInc community members came not in the form of interpreting the company's plans and developing projects to align with its goals, as was often the case in the OpenTech community, but rather in working on a predictable timeline and without mistakes. Below, I describe the collective effort in the CrowdInc community, which drew on appeals to efficiency, ingenuity, and company growth. Taken together, we see how the community works

together to achieve the firm's high expectations for reliability and productivity. Importantly, their commitment relies on belief in their collective expertise as an occupational community, yet is also supported by organizational goals with which they identify strongly.

**Working Efficiently in the Community**

At the time of study, workers were compensated using a modified piece-rate scheme. However, the compensation structure did not reward efficient performance beyond a relatively low threshold. In fact, collective production beyond the expected rate led to recalibrations of the production benchmarks, such that working faster to earn more was not a viable strategy. Unless one assumes a widespread misunderstanding of the incentive structure by workers, the result was that workers who strove for more efficient production did not do so to increase their earnings in the long term. On this point, the data do not support claims of false consciousness among the community. To summarize, working toward more efficient production did not yield monetary benefit for community members, either individually or collectively, in day-to-day project work.

Yet, in belief and behavior, the community was committed to the efficiency ideal. As one community member told me, "There's a lot of multitasking, so you basically have to speed up if you want to be good, the best. You have to cheat or find the shortest path to save time." Workers shared these time-saving approaches in the course of project work. While promoting a less cunning approach, the head office advocated for the same ends, as evidenced by the company's policy handbook. It read, "Working from home has its

advantages. While the advantages easily outweigh the disadvantages, bad time management is the culprit that many fall victim to at some point [...] However, once you master the ability to organize and plan, you will become more productive and efficient with your workload." Efficiency was the sine qua non of community participation, a goal toward which one strove as a productive member of the community and the firm.

The socialization process described earlier promoted regular communication and active teamwork. These dynamics supported a strong norm of efficiency. Where some task might prove difficult for one person, he or she was encouraged to contact managers or ask peers at the first sign of a problem. Discussing the issue could surface a new approach for the team, personal training for the requester, or a change in the project requirements. Below, a typical chatroom post showed a community member asking her colleagues about an inefficient project.

> "I've been working for 3h in this project and I noticed the [rate] is dropping dramatically from hour to hour… I started with about 4 [or] 5 contacts in the first hour and now I only got 1. I think it's due to the list being ordered by Alexa Rating [website traffic rating]. I noticed the companies are smaller and smaller with no valid titles found… Don't know if anyone else is noticing the same."

Managers and peers were eager to communicate early in order to avoid workplace slowdowns in the future. In the case shown above, managers might have reconfigured the data structure to more evenly distribute difficult search tasks across the project lifecycle or peers might have shared their strategies for accessing hard-to-find data. As Jessica told me, "When you hit a bump in this company, a manager is the person to reach out to and ask any question, like, 'I don't know how to do it. Please help me. Or, I'm not doing this

fast enough as you're expecting from me. Please show me how I could do it faster or better." The goal was to address issues early so that they do not require attention by managers, slow down the deliverable date, or, at worst, present shoddy information to the client. One manager in the community described the strong norm of efficiency in the community, explaining, "It's not about fast. It's more about efficient." I ask him to elaborate on his understanding of efficiency in this context. He told me, "You don't have to struggle to do your job. You have to work *normally*. Let's say, even if it's not your best day, you should be able to have enough skill to work relaxed." In other words, "normal" work in the community was efficient work, a status quo promoted by the communicative norms. If one was not working efficiently, one should seek help from manages or peers before hindering the collective effort.

Aside from promoting early communication about potential issues, the friendly atmosphere of the rooms also supported unplanned or extra work on tight deadlines. As one worker reflected on her extra work, "We would just have a call in our personal time. People won't even bother, like nobody will ask, 'should I make a timesheet for that?'" For their part, managers within the community consciously built a friendly atmosphere not only to counter the notion of faceless management, but also to request additional work if required by the company. Referring to his relationships with workers, Jason told me, "It's friendly [...] If I do help them even in those cases, when I need help with some extra work, maybe it's something that needs to be done yesterday, then those guys will jump in and help because I also helped them when they needed. It really works [...] We have quite a few cases of those and we manage to finish in a short amount of time, but that's because

we basically ask everyone from the team to help out. And it was not mandatory." The friendliness shown by Jason in accommodating workers' flexible schedules came with an expectation of reciprocity. The atmosphere of the rooms was not merely the product of altruism or selfishness on the part of managers and peers (Teske, 1997), but rather a combination of motivations that reflected the collective identity of the community as a place of work and leisure.

Community members were regarded by the firm as the first line of defense against problems in client relationships. Workers took this responsibility seriously and treated it as evidence of their efficiency. The community spent every day in the details of each project, so they were able to respond rapidly if problems arose. As one worker told me, "It might take [sales team] more time until they can email the client or get on the call with the client. We are there seeing the problems and having the solutions and we can email right away, CC'ing the [sales team], but we can right away tell the client what issues we have and what ideas we have right and not necessarily wait for the [sales team]." These efficiency gains supported an attitude that community members were the true experts on the work of the firm. Another worker contrasted the community's expertise with that of the internal sales team, saying, "We are the most involved in the day-to-day tasks of each project [...] We know better what is good, what is not working, what would be a better idea for that project than they have." Because it supported the community's notion of efficiency, being close to the work was a point of pride rather than a sign of "getting your hands dirty" in the minutiae of projects.

**Solving Problems with Community Ingenuity**

Despite falling outside their task jurisdiction, community members proudly found workarounds when software broke, built their own software where the company's products were inadequate, and developed work process improvements where necessary. In providing these solutions, they saw their ingenuity as a service to the firm rather than an expression of their autonomy. In other words, they developed a collective, work-based identity, what one might call occupational emergence, without the familiar move toward occupational autonomy that typically accompanies such emergence (Rao, Monin, and Durand, 2003). On the contrary, they moved toward greater control by the firm.

I regularly saw evidence of community members providing solutions where processes were broken or inadequate. As I showed in the preceding chapter, this problem-solving mentality was promoted in the socialization process, where occupational training fell to the community members rather than the firm. According to one community manager, "We invest a lot of time and resources to make them really, really good. Not only a researcher, but also to think about everything in a different way, to *think outside of the box*. That is the most used term." Ingenuity was central to the collective identity as developed within the community. The capacity to "think outside of the box" was promoted in the community-led training that supplemented the official training program, where "the box" was code for the firm's preferred software and conventional ways of organizing project work. To "think outside of the box," as judged by one's peers and managers in the community, was to embrace an occupational identity.

As evidence of this problem-solving mentality, community members developed their own workarounds to address perceived or actual problems in the firm's software. An example of the latter shows how, in absence of explicit direction from the head office, community members solved a problem for a client and allowed the project work to continue smoothly. In this case, community members needed to sync their information with the client's database if they were to provide unique data. The data syncing arrangement was a foundational, technical process that enabled collaboration with external workers, yet it failed on numerous occasions. When this technical relationship broke down, the community fashioned a workaround without reliance on CrowdInc's technology for data syncing. As it happened, the development of the workaround not only required programming expertise from the community, but also required extra steps in the work process of community members. Nonetheless, the resulting process was faster than the top-down process envisioned by the firm, a point of pride for the community. The excerpt below captures the arc of the problem and its solution:

> "I'm not sure if it was the server or something, but something crashed, so we couldn't use our product to sync with the client's database [...] In that case, the client sent us a CSV [database file] with everything and [community] built an offline application that checks the CSV way faster than our product. [. . .] We are still working, but working on our product that we developed, a simple visual application for Windows. With that one, we could continue delivering more and more [data] compared to the client's database."

The benefits of these community-led innovations were that community members could continue working on the project, but perhaps more importantly, also continue providing feedback to the company. Reflecting on their efforts to provide a data syncing workaround, a community manager said, "We didn't pause the project because we

couldn't use our product yet, but we could test the product and give the proper feedback on what is needed, what is not working, what has big issues, and actively exchange ideas and feedback. [...] It's even better because we can provide active feedback about what is not okay in our product and how we can make it work with enterprise clients." When he said "our product," he was referring to the software developed by the firm rather than the workaround created by the community, demonstrating his sense of ownership over each. Community members saw their responsibility as extending the capabilities of the firm's technology through workarounds and feedback about their alternative approaches.

Before providing feedback, these ideas were developed in project teams, where they were vetted by community managers and peers. In cases where the solutions appeared viable, they were then elevated to the attention of the head office. As one community member told me, "The researchers in our team, they are used to communicating with each other as friends, not as colleagues. They discuss the idea and everything and then if something good comes out then that will go to the community, to the other teams." After community-built software or workarounds were vetted, there was a process of institutionalization led by the company.

The solutions provided by the community were institutionalized through formal channels in the form of a knowledge database maintained by CrowdInc. According to Kevin, "Basically we built a knowledge database with articles, links, how-to stuff. That went to the researchers and other managers and each one took whatever was a good fit for their project and implemented it, case-by-case." More frequently, informal channels were used to spread new process information, workarounds, and software tools. For instance,

after first testing the solution in project groups, information spread in the main chat rooms of the community. The informal distribution can be seen in the following excerpts, where a community manager informed the community of a pertinent workaround.

> *Post #1: Community Manager*: Thankfully for [community member] we have a new solution for LinkedIn UI [hyperlink to workaround]. This extension will allow you to simulate [browser] that does not support new LinkedIn UI and will return people to the old UI. There is no info [on] how long this is gonna last but is effective as for now! May he live long and prosper !!! (Note DO NOT WRITE IN THIS ROOM) thank you !!!
>
> *Post #2: Community Manager*: Once again [community member] found a way to return the old LinkedIn UI for [data] search. Please view document [hyperlink to document] and Video. Happy Hunting !!! [community member] thanks again !!!

In the first chatroom post, a community manager distributed information about a new workaround for problems using the LinkedIn tools. Regularly scheduled work on multiple projects could grind to a halt when tools stopped working as expected, so the stakes for working around such issues were high. In the second excerpt, posted some weeks later, the community manager again complimented the community member for identifying a new workaround. The LinkedIn problem had reappeared and the original solution was no longer viable, so the community member fashioned a new solution. I spoke with the individual responsible for the solution, who expressed his satisfaction with the recognition and his role in the company. “It felt really good to help every single person in the company to work with the old interface and to get back in the room where all the managers are and all the big guys.” This was an opportunity to demonstrate occupational expertise among peers and signal problem-solving skills to the head office.

Identifying these workarounds and providing feedback on in-development software required uncompensated time on the part of workers. Beside the search time

required to identify new approaches, additional effort was required to test new features of CrowdInc's tools while simultaneously relying on community-built methods to keep projects moving. Community members acted as "permanently beta" (Neff and Stark 2002) testers alongside their active project responsibilities. As a community member described to me, "We were supposed to use [firm's tool] because we can give feedback for the developers, but then again, sometimes it's not the best way and we've had some cases where using [firm's tool], we sent client's low quality information. We decided to use both: our own method and the new tool." The community teams delivered on their clients' expectations through partial duplication of their efforts. Using this strategy, they were able to satisfy in the short-term the diverging goals of the firm and the clients when untested tools were introduced.

**Improving Product and Process to Grow CrowdInc**

The community members felt passionate about improving their performance and the company's software because of their perceived role in the firm's success. Reflecting on their focused dedication to the company, David told me, "We are like a cult [...] we always talk about work. It's always work, work, work. It's not like the dull type of talking about work, but it's always fun because you're always talking about other people in the community." At the conclusion of a recent project, they discussed the role of the community in delivering a high-quality service to clients. With great pride, they attributed the success of the company in recent months to their expertise. "We talked about how that project was a really big success. They made like one million or two million dollars, a big

amount of money. We started talking about how we were sitting a few years ago, doing nothing, and now we started working for this big American company and how some company out there is making lots of profit because of our work. It was really weird and cool at the same time." As you might expect from an employed team, the group felt responsible and shared in the success of the company, although it's unlikely they were aware of the exact revenue figures. From their perspective, it was surprising, yet flattering that their distributed efforts could have a big impact on the company. They wanted to replicate this performance in all of their projects.

Acting on their commitment to grow the company, community members engaged in product and process development for the firm as much as possible, which in turn meant less autonomy and more work. As Kevin told me, "we are working hard on making the perfect product. It still needs a lot of development, but we are on the right track. Making the team bigger, adding more clients, mostly enterprise clients, and continue doing the best we can to make them really happy. Growing, growing, and growing." To be sure, the community did not play a direct role in the development of the firm's product. Rather, he was referring to work required to support the employed team of software developers and salespeople, including the formalized submission of product feedback and the provision of client services. In these ways, the community focused its effort on the growth-oriented mission of the company alongside the typical data collection tasks for which they were paid.

At CrowdInc, product improvement was promoted as the joint responsibility of workers in the community and software developers within the company. In the

community, workers were tasked with submitting feedback to the head office when they found broken software or processes that could be improved. As directed by the firm, this feedback took the form of *support tickets*, a format which would be familiar to anyone who has reported technical problems to a software company. Within the software engineering team, employees responded to software tickets by either programming solutions or pushing the work to a future development cycle. Working in between these two groups was a support team composed of workers in the community. The support team worked to synthesize feedback and selectively elevate concerns to the level of the engineers. Working collaboratively, these three groups improved the products and processes developed within CrowdInc.

In the rhetoric of the head office, these improvements were conceptualized not only as product improvements, but also as process improvements. For instance, a call for feedback took this form: "We are conducting a Time Study and would like You to create 1h recording of your research on a project. This video will be used to help us gather data to increase efficiency and productiveness of our upcoming new [software product] release and Research process itself." Process improvements were those which affected the way work was completed by the community and employees of the company, whereas product improvements were those which affected the good or service provided to the customer. In some sought-after cases, improvements to software affected both the product and the process, meaning that customers were provided a better good or service and workers were aided in their production for the firm. Regardless of its relevance to product or process, feedback for improvements was costly in the short term for workers, yet embraced as a

means by which to grow the company. Furthermore, as some planned features sought to automate aspects of crowdsourced work, efforts by the company to improve the product had debatable implications for community members in the long term as well.

To improve the company's offerings, community members were committed to submitting feedback to the head office, whether in the form of support tickets, emails to employees, or conversations with community managers. Kevin told me that his method of providing feedback depends on his work hours. He says, "Someone from the support team might be on a different timezone than me, so then I'm just sending them a support ticket with all the details, links, screenshots, and ideas I have. But if someone is online, I can ping him. Still, I will send a support ticket to be on file with the issue we discovered, or the bug, or the idea we had, or whatever." Similarly, Jessica showed me her support tickets when discussing a persistent problem with the software. "I sent a ticket. I even found the solution. 'Thanks for submitting a ticket, etc., etc.,' I even sent a screenshot. I explained the process and it was never fixed. It was closed." Hoping to get their improvements addressed, some even sent redundant support tickets after they communicated directly with the support or engineering teams, uncompensated tasks that took valuable time in the course of their work.

Feedback was regularly solicited by either the community support team or by full-time employees. In the excerpt below, we see the typical form of this solicitation, posted to a main chatroom used by workers in the community.

> *Community Support Team Member*: Good Day! As you all know we are having issues on [database software] and we are trying to verify how to move forward. We need to know

> how many users and how we are using [database software]. Having this information will help us decide whether or not we'll invest time fixing it and it's priority.
>
> Please take time to answer the survey below, it will take less than 1 minute. [Survey hyperlink]

Given its posted location, all community members were likely to view this message and so could choose to provide their feedback on this particular issue, if applicable. We can also see that this feedback request was an attempt to make perspicuous certain practices of the community, including the use of CrowdInc's own software tools, that are otherwise obscured from view by the firm. From my discussions with employees and community members, the latter gladly participated in feedback requests such as this one, which was work for which they were not compensated directly. To demonstrate the nature of this feedback, I've included several recommendations posted by community members in conversation with employees and the community support team.

> *Community Member*: I'll make the first suggestions. Please try to unify everything within the [database software] for workers. All the spreadsheets seems redundant.
>
> *Employee*: The developers are already working on that :) But does take some time!
>
> *Community Member*: Also, the [database software] homepage can be made [more] efficient for workers if it is divided in three equal columns of Messages, To-Dos, and Project Updates. This will allow workers to easily view everything at a glance.

In the above example, we can see a direct exchange, one that happened in real time, between a representative of the head office and a community member. Often, when feedback was posted directly in chatrooms, community managers or employees urged community members to submit formal requests. As Jessica told me, "We encourage each

other. If something is not working, we write about it on [chat platform], 'hey, send a support ticket for [database software] for your project.'" This amounted to recording the feedback and communication asynchronously with the head office about feature improvements. The following interaction happened between a worker, a support team member, and a community manager, all of whom were members of the community rather than employees. In echoing the community manager's suggestion to submit feedback formally, the support member appealed to the efficiency gains of formal rather than informal feedback.

> *Community Member*: Hey guys. I am using the new [software tool]. I was thinking. When finish adding [data], instead of having to go back to [software tool] then click "Add Account" there could be another "Add Account" tab at the bottom of the page [posts a screenshot to depict the proposed change] Perhaps on the left side to make it less confusing
>
> *Community Support Team Member*: That's a great suggestion :) Someone's already submitted the idea, and we've passed it on to the devs for consideration
>
> *Community Manager*: Make sure to submit a feature request via portal [Hyperlink to feedback portal]
>
> *Community Support Team Member*: Because that would be a lot more efficient
>
> *Community Member*: *Thumbs up* Thanks

In addition to support tickets, I attended numerous meetings where employees invited community members to suggest new processes or features for the firm's software tools. At these meetings, employees solicited suggestions as "features to improve the work for you as workers." For their part, workers welcomed software-based rules to guide their work, so long as these features did not slow the work process. In a typical meeting, a support team representative, who was always a community member, and a

development employee asked community members how they confronted a certain type of missing data classification in the database. The meeting leaders wanted to know: how do you deal with the classification problems now, in the absence of explicit software-based rules from the firm? One attendee said he appended a note to the database entry when data were missing. Another person disregarded the prompt and instead wondered aloud when the development team would provide a proper software solution. At this point, the support team leader informed the group that a proposed software solution had been added to the development timeline, but that community members should not expect the new feature for several months. In the meantime, she reiterated, the company wanted to learn about the current best practice so they could properly guide development and formalize ad hoc processes. As they detailed their current approach, the attendees voiced their hope that the developers would provide solutions quickly to improve the efficiency of their work.

The most discussed product and process improvements involved new automation features. Employees often told me that the firm aimed to "productize" its offerings, or transform aspects of the firm's services into goods provided autonomously by the software product. In one such conversation, an employee said, "We're in the process of productizing what we were doing manually," in order to make the client services relationship "one-to-many instead of one-to-one." Accordingly, an internal company memo about new automation features proclaims, "Our new tool will change how research is done. It will increase our [production] rate, change how [quality assurance] is completed, as well as how we work with our clients. Our client process will become more

standardized and automated. This will help pass on savings to customers by offering lower prices, which ultimately helps us get more customers. More customers = more work for [community].” In the official company announcement, the “productization,” or automation, of manual work will lead to more manual work by attracting new business.

Predictably, a vocal minority was skeptical of the planned automations, with some worrying about a reduced workload or, conversely, more uncompensated work as humans were required to fix problems caused by new software. After all, the community was presently engaged in developing workarounds when they encountered problems using the existing software. The skepticism notwithstanding, community members were generally confident that the firm would retain their services in some form. Following the logic presented by the firm, they felt that product and process improvement would grow the company, along with the community’s role therein. After all, they offered occupational expertise that was uniquely suited to the needs of the firm and integral to its growth thus far. The new automation had yet to appear during the period of study, but the community was eagerly engaged in its development.

**Summary: Control at CrowdInc**

When asked about the role of the community in the operations of the firm, Jessica spoke to the community’s work ethic. Referring to employees of the head office, she told me, “They get a strong community. People that are willing to work. Always going the extra mile. Always going further to complete the task. Of course, they're all here for money and it's work, but, you know, if we stay a bit longer, or we have a call, or talk...

There are people of course who 'just work my shift,' but not so many people like that. This is a real living community. All the people here have all the support they need. You know, the leadership and the company really didn't do that." As the quote makes clear, Jessica and her colleagues felt that their identity, and the corresponding expertise, developed organically rather than being structured by those in the head office. Although they shared an organizational identity with employees, who likewise worked to grow the firm, their effort depended on identification with the occupational community as well.

To summarize, in the CrowdInc community, consent relied on collective identity around occupational contributions in service to the firm. In the absence of the employment relationship, the occupational community was a site of collective identity formation that compelled adherence to the firm's expectations around efficient production, improvement of work processes, and development of the firm's product. A collective identity that bridged the gap between organization and community was an ongoing achievement and required the extra work of community members, who felt their occupational expertise was the foundation of membership in the firm absent employment. In their estimation, the occupational expertise required to produce efficiently and creatively, and to grow the company, brought an irreplaceable value to the firm and its clients.

### Control at OpenTech: Balancing Occupational and Organizational Identity

> "I think the main point is that when you're a volunteer, you have all types of responsibilities. You speak for OpenTech, but you are not OpenTech in the end [...] If you work with the community, which is my case, the way that you treat them when you're a volunteer is different, because they see you as an equal, than when you are an employee,

> because they see you as this person who works for OpenTech and can help them reach stuff." -- Brian, OpenTech employee and former volunteer

In the OpenTech community, expressive commitment to the community and pursuit of OpenTech's mission motivated continued participation. This is not to say that transactional considerations, such as improving job prospects through resume building or earning free stuff from the company, were irrelevant in motivating participation. These forces were present in varying degrees and at various times among those in the community. In particular, the last chapter showed how the socialization process relied on the distribution of company totems to promote a sense of shared membership across the company and community boundary. Alongside these more transactional concerns, the community ideal was the primary motivator, a necessary condition for involvement with the company. Promotion of a collective identity happened not only in relation to the firm, but also in the occupational community. In part, the firm offered symbolic and material visibility of its internal decision making. This process, dependent upon sociotechnical infrastructure like the NDA and its associated access privileges, served to develop sentiments of organizational membership. The occupational community offered a related, complementary source of identification that worked alongside organizational membership. Importantly, the result of these dual processes was not only a sense of agency among community members operating toward a collective pursuit, but also adherence to the company's expectations.

Self-reported motivations for participation were tightly linked to the identity of the occupational community rather than instrumental pursuits related to career. For

example, Drew described taking on more responsibilities when he adopted a leadership position in the community. He rejected the typical explanations for his decision, saying that “some people would say recognition, but I’m pretty sure that doesn’t apply to me for some weird reason.” Instead, Drew appealed to the community ideal that was repeatedly invoked in conversations about commitment to OpenTech. “I think for me it was more about the whole feeling of belonging to a community. And that's probably why I kept trying to grow the community.” Like Drew, Austin mentioned the aspirational nature of his relationship with the firm, but stressed the community as a goal of participation in and of itself. He told me, “I understand their values and I would definitely love to be a part of the OpenTech team, as a full-time employee, but that's not an end goal. Even if that doesn't happen, I'll be happy because I get to meet a lot of good people and people with whom I learn a lot of things and people with whom I share a lot of things. That network is something priceless for me and that's a very big driving factor.” Finally, Rebecca participated in a group that focused on translation tasks for the company. She contrasted her work as a paid contractor for another company to her volunteer work in the OpenTech community, saying “we had deeper exchanges and we learned to work together as a team because the important thing for us was to give the best possible translation, it was not a matter of, "Ha, you made a mistake. I corrected you. I'm better than you!" I think I learned the real meaning of working as a team to reach a goal.” Her team, like other translators volunteering for OpenTech, was known for working on very tight deadlines to translate OpenTech’s documents for free.

In appealing to the community ideal, community members like Drew, Austin, and Rebecca downplayed the appearance of self-promotion or overt career striving. Mention of working toward employment with the company was seen as taboo, which is why Austin was quick to qualify his aspiration as "not an end goal" relative to the community benefits. Likewise, employees who began working with OpenTech as community members frequently remarked on the haphazard nature of their career trajectories. Despite mentioning his past applications for employment at OpenTech, one employee with whom I spoke reassured me that he did not volunteer with the expectation of a job. He told me, "I never did all these kind of things only to get a job in OpenTech. Actually, if I wanted to do that, I probably would have quit contributing ten years ago or something. Back then it was kind of impossible to think that in [country] I could work for a U.S. company. I was doing it for fun and I never thought of being an employee. Actually, in all these years, I only applied for one position, but it was for community manager." A strong community ideal elevated the pursuit of OpenTech's mission over personal striving. Thus, OpenTech community members often invoked the mission and the occupational community as the basis for their continued effort on behalf of the firm.

**Seeking Control from OpenTech**

While it's true that the community often regarded itself as independent of the firm, individuals sought more guidance from the firm in pursuing its mission. In doing so, they made claims toward greater integration with, rather than greater autonomy from, the firm. Ryan, a local community leader who was passionate about the firm's mission, was

encouraged when the firm provided a short leadership training program. We discussed his recent efforts to grow a local community group, in which he was frustrated by the gap between organizational and community knowledge and overwhelmed by the freedom to guide the community. After the training program, he was given probationary status to prove his efficacy "furthering OpenTech's… not 'wishes,' but their mission." To this end, OpenTech required that he demonstrate consistent activity testing software, hosting events, contributing software code, or other tasks within the purview of the community. "It's a lot of work, you know, it's taking time out of your day and stuff. I was meeting with user groups and doing presentations." When I asked about the work, he suggested that the difficult part was pursuing projects that did not track with the organization's goals. "There wasn't a lot of guidance", he told me, "The most guidance you'll get usually is on the OpenTech [website] where it shows what the core initiatives are right now and it will give you kind of like a guideline of what to do. Some are better written out than others [...] Otherwise it's kind of up to you to figure it out." Ryan, like his peers, found himself overwhelmed by the broad mandate.

The guidelines to which he referred were posted publicly on the firm's website. Along with links to relevant programs, they included project titles for the current quarter, but did not encourage planning for future action by the firm. Speaking about the necessity of guidance for planning, he told me, "It would have helped focus on things that are more beneficial versus things that are just kind of nice, but don't really accomplish anything we're trying to accomplish right now." Further, Ryan struggled to figure out how he would act to meet the short-term goals. "The biggest challenge is trying to find a niche or

something. it feels like trying to figure out how you can promote OpenTech's initiatives effectively is the hardest thing." Choosing projects and executing to achieve the organization's goals was a persistent source of frustration in the community. In other words, various projects existed to draw one's attention, but selecting impactful contributions and finding the best way to achieve these ends was an interpretive act. Community members would have preferred regular communication about plans and task expectations.

Community members hoped for the imposition of structure from the company. They acknowledged that their functional or local groups required local leadership, but they also sought a centralized structure, including on-boarding and role definitions. In the absence of this guidance, several groups decided to implement their own structures drawing on elements of the organization as a model. Interestingly, despite their formal position outside the firm, their method resembled an *organizational toolkit* approach, in which individuals rely on bits and pieces of organizational routines, rhetoric, and structure to develop professional and organizational identities (Koppman, Mattarelli, and Gupta, 2016). Although many assume that community organizing is necessarily amorphous with limited role definitions, community members recognized the benefit of structure, particularly in relating to work within the firm. "I think that the main thing is having a structure," one long-time participant told me. "I know that can sound a little bureaucratic, but having a structure means that you can understand the roles inside the community [...] Having someone from outside to help see their limitations and structure the community based on skills instead of rigid roles." Reliance on "rigid roles" was a

method of organizing perceived as appropriate for corporations, whereas the community wanted guidance along the lines of skills. To impose order on their own activities, community leaders sought greater integration between their own groups and the structures within the firm.

**Hidden Labors of Community: Accommodating Employed Staff**

Although they maintained more tenuous connections to the firm, community members were also more accommodating of the variations in corporate work-life than were employees of the corporation. While we might expect greater flexibility from the salaried staff, the data suggest the opposite. As I heard repeatedly in interviews with employees and community members, the latter must be willing to accommodate the preferences of the former if they hoped to continue their collaborative relationships with the firm. Employees of OpenTech, by comparison, were much less willing to alter their schedules, work processes, and communications to accommodate the preferences of community members. In general, employed staff worked during their designated office hours, were available to meet at times typical for their timezone, and relied on tools with which they felt comfortable.

Community members acceded to the preferences of employees and worked from a foundation of accommodation. This was true in cases of tool use, meeting times, task completion, and more. Capturing the mentality of the community, Stephanie told me, “It feels like the volunteers will adopt something more easily because they are here to help, while an employee is more like, ‘I don't want to do that. Why do we connect to do my

stuff? I don't need another platform.' I'll say, 'Oh, you're on that one? Okay, I'll join it to help you there." Stephanie, a volunteer herself, expressed the commonplace willingness to accommodate employee preferences. Similarly, another community member told me, "You're here to do good or to do volunteer stuff, it doesn't matter to me what we use. But the employee was like, "I'm not going to use that. I don't like it. I want to use this one because I already know it. If you don't like it, I will send you my work on email." Motivation to work alongside employees and in the interest of the company's mission compelled flexibility among the community, but employees appeared constrained by habit, convenience, and a desire to enforce limits on their availability.

Time management was one dimension of work that made this relational dynamic salient. Community members adjusted to inconvenient time zones or atypical working hours when they needed to contact OpenTech employees. One contributor told me, "Having a call with a OpenTech employee will mean that he is 100 percent tied to his work schedule, whereas as a volunteer, I always wake up early in the morning or have midnight calls. I don't want to express any negative feelings about employees, but it's just how it feels and how I saw it in the past years." The flexibility to accommodate employees' working hours led to a familiar pattern among community members: working on OpenTech tasks while physically present at other jobs. At least ten participants scheduled meetings with me while at the offices of another company, suggesting that they juggled standard employment with their commitments to OpenTech. According to Ryan, "One thing I've noticed is that a lot of times, because most of these calls and stuff come out of Europe, we're kind of on Europe time for a lot of things. It's 10 o'clock in the

morning on a weekday or on a Saturday [...] I make it work because I can be at my desk at work and have my headset on and be on a call. I don't really have to say anything, I'm just listening. I mean if I want to say something, I can go grab a conference room." The contributors I met all worked in software development or information technology, which meant that their places of work often had flexible work patterns that accommodated their work with OpenTech.

Community members also found themselves juggling multiple communication platforms and task-management software when interacting with peers or employees. While it is not uncommon to navigate multiple tools when interacting in software companies, community members needed to work across communication silos established by employees if they wanted to participate productively, a fact acknowledged by employees themselves. As one employee told me, "The [employees] who are hardcore about open source love [chat platform A] for its ability to bring new people in, but they do not acknowledge the user-experience benefits of [chat platform B]. Right now, that means we have two new communication platforms that are creating a barrier between contributors and the employees." Echoing this assessment, another employee told me, "Everyone's comfortable with their own way of working, you just remember what method people use to communicate [...] [We] need a better balance between freedom and consistency." Community members were left to navigate these barriers of organizational membership and participation.

For instance, Stephanie described the work she did to manage multiple identities across platforms when interacting with the firm, both as a volunteer and as a contractor.

Her dual work identities were a challenge to maintain, as she carefully managed the perceptions held by both employees and community members of her work. She told me, “I don't know why I care so much about making the difference. Probably because, at the beginning, people were thinking I'm just here for the money and I want more jobs and stuff like that. I really wanted to show that I'm here for the community side.” To maintain appearances regarding community expectations, she used separate aliases for paid work and unpaid work. “I even created two OpenTech accounts for [task-management software] and everything to support what I do as a volunteer and what I do as work.” To manage these multiple identities, several local communities implemented technical solutions that allowed them to bridge multiple communication platforms, “so you can participate from both ends to the same discussion” (Timothy Interview). In sum, members of the community took responsibility not only for work tasks, but also made other accommodations that enabled their continued work with the organization. These amounted to hidden labors that, in the interest of positive collaboration, were minimized when interacting with employees.

**Work and Requests: Balancing Occupation and Organizational Identity**

In demarcating her “volunteer” and “work” efforts, Stephanie practiced boundary work common to the role distancing among employees and community members. Community members generally saw the efforts of employees as distinct from their own and worked to maintain this distinction. Consider the experience of one community member who was granted access to employees of OpenTech. “For me, I got a lot of

visibility. Now I know what OpenTech is like, I know all the inside stories. I know how they operate and all those things." Upon gaining this visibility, Austin, a participant who had interacted with employees at conferences, was surprised to learn how employees considered their relationship to the firm. He contrasted the perspective of community members with what he's learned about employees at OpenTech. "A few OpenTech employees who I went and interacted with, they have a very transactional view. 'I do this job and I get paid.'" He stressed that the employees' "transactional" perspective did not apply to the community.

In fact, for employees, approaching the community with a transactional perspective led to misunderstandings around consent. Thus, like Mears' (2015) promoters who made the mistake of approaching VIP labor as work rather than leisure, OpenTech employees occasionally misconstrued the relationship between community and company as transactional rather than expressive. As Austin reflected on the employee perspective, "It doesn't really make sense. You want a contributor to contribute to a project without getting paid and you expect them to be more dedicated to the project." According to volunteers, inconsistent expectations by employees stemmed from misunderstanding the motivations around work within the community. In these instances, breakdowns in the labor process occurred, as community members spoke out against the expectations of employees or refused to participate. For instance, I observed a collaborative work event in which employees tried in vain to actively assign work tasks, as volunteers privately questioned the intentions of employees they otherwise respected. The result was that

employees practiced a delicate dance to gauge interest and direct their effort without overcommitting volunteers.

To avoid these breakdowns, community members themselves played important roles in navigating contested understandings of work when making requests of their peers. For instance, in delegating responsibilities, it was important that requests not seem like top-down commands, but rather suggestions to do tasks pursuant to the firm's mission. Rebecca provided an example of this boundary work, wherein she selectively employed different communication channels in directing her peers. "There are a lot of new volunteers and if I just email them, it looks like I want them to do work. Instead, if I put the issue on [task-management software], if I put the list of things to translate, they can choose to translate or to say nothing. I think it's better for them. It's less pushy." She was particularly sensitive to this perception, she told me, because she confronted her own volunteering as more than work. "I love to translate. It is my vocation in life. When I translate, I feel very happy, relaxed, in control. So it is my work, but it's also my way of expressing myself." The tasks she completed for OpenTech occupied a zone of expressive labor that was protected within the community. Using relatively indirect task-management software rather than direct email correspondence allowed her to reinforce this boundary and offer similar boundary policing to her peers. The collective identity activated occupational norms in opposition to organizational membership, where task delegation connoted work. Under these circumstances, tactics like Rebecca's allowed for continued effort by the community in pursuit of the firm's goals.

**“Becoming NDA’d”: More Visibility, Higher Status, and Greater Control**

Accommodating the perceived rigidity of employees was one way in which community members placed limits on their autonomy in service of company’s mission. This dynamic extended beyond syncing for convenient meeting times or finding employees within their preferred communication platforms. The non-disclosure agreement (NDA) regime was another source of firm-based control and identity that mattered greatly for the collaborative relationship between the firm and the community. “Becoming NDA’d,” (pronounced *en-dee-aid*) to use the language of employees and community members, was an attractive status marker within the community, one that afforded symbolic and material benefits when working with the firm. Anyone who has signed a non-disclosure agreement when visiting an office knows that entry is often contingent upon one’s signature. Similarly, signing an OpenTech NDA offered visibility, both symbolic and material, into OpenTech for community members who hoped to collaborate more fully with employees. This visibility entailed greater task, communication, and identity regulation (Alvesson and Willmott, 2002), but also engendered stronger identification with the firm by community members.

Two benefits made the NDA attractive for community members. First, those with NDA-level access were seen to have the mark of more complete membership in the organization. In granting the ability to guard bureaucratic secrets, the NDA is one of several characteristics that constitute the modern employment relationship in high-technology industries. At OpenTech, the NDA signaled that community members were deemed trustworthy by the organization on the basis of their work or their relationships,

that they were "*known* contributors over a course of time" according to Timothy. To be *known* was to achieve recognition for one's work by the firm, to have one's occupational identity align with the organizational identity. According to one employee, "It is a trust issue, which I think is true of other teams as well. [Contributor] is afforded an inside look to our team because he is a trusted contributor. He is NDA'd." Second, an NDA signature afforded access to internal documentation, communication channels, and official, in-person meetings with employees. These benefits were consequential for contributors who hoped to work on strategic issues and programming alongside the organization, community members who developed products closely with employees, and, importantly, those individuals who worked to build local groups of contributors. Of course, in signing the NDA, community members sacrificed autonomy to discuss certain features of their work, adopted greater responsibility for contributions, and were more restricted in their communication channels.

Frequently mentioned in interviews and observation, the implications of the NDA were discussed by community members in a narrative that downplayed corporate control and highlighted the foundation of trust reflected by the NDA. Those who had NDA status often emphasized the trust-based nature of their collaborations rather than the transactional aspects of their collaborations made salient by the NDA. Community members with NDA status saw the NDA as a signal of deep trust with their employed colleagues, but also as a symbol to OpenTech's prospective partner organizations that required legal codification when working with external actors. Timothy told me, "Sure, there is the legal agreement, there is the non-disclosure agreement that everybody who's

in that categorization has signed, but I think, and some people would think, that it's to keep the lawyers happy and keep other companies, which maybe we have signed NDAs with, happy. But in terms of when it comes to OpenTech, it's much more trust based. I'm not sure I could ever see OpenTech actually taking legal action against a volunteer who has infringed their NDA [...] It's much more a trust thing." When reflecting on what the NDA represented, community members regarded it as legal codification of a social fact and mostly redundant given their trust-based relationships with the firm.

The distinction between symbol and material benefit was salient in past discussions between the community and company. In the following excerpt, a contributor started a discussion with employees on a shared message board. In the conversation, the contributor noted inconsistencies in the process of granting access to the firm's internal resources after signing the NDA. This inconsistency was registered by the volunteer as a "bug," or a technical problem in the company's infrastructure, that required a fix by employees. The contributor provided a rationale for the bug submission:

> *Contributor*: If we're using the NDA group to grant permissions to protected resources, and we're not making absolutely sure that everyone who has signed an NDA is able to get access to these protected resources, then we are effectively failing to administer trust to the community. Signing an NDA becomes more a symbolic gesture of trust rather than the actual gesture when the legal and technical administration aren't tied together.
>
> *Employee*: I'd love to solve all these issues you raised. I think we need to setup a task force to tackle this. Right now the opt-in process means this isn't as inclusive as it should be. Part of updating the process should be having clear communications of what the responsibilities are for those who are under NDA. I don't believe this is documented anywhere currently.

At this point in the discussion, the two began collaborating on the problem in another venue. Importantly, the employee referenced the "responsibilities" of those who

have signed the NDA after the contributor suggested, “we are effectively failing to administer trust to the community.” Whether due to their efforts or those of others, the process was eventually streamlined to guarantee access upon signing the NDA, thus linking the “symbolic gesture” and the “actual gesture.” In this case, while perhaps not immediate, this exchange represented a successful attempt to articulate the rights of the community vis-a-vis the firm and to deliver coveted access commensurate with the trust felt by community members. The resulting solution relied on infrastructural changes to link the symbolic and actual gestures, but the technological dimension was cause and effect of discussions about the appropriate access, or rights, that should accompany community identity (Hecht, 2009). I did not encounter efforts by the community to discuss responsibilities entailed by the NDA, but rather permissions, such as access to internal resources.

In practice, trust and access depended on relational dynamics as well. Community members’ general belief in a trust-based relationship with the firm was conditioned by employees who acted and spoke on the firm’s behalf. I often heard community members identify differences in the patterns of collaboration between two general types of employees: those who came from the community themselves and those who were newcomers to OpenTech. Referring to these widely acknowledged categories, Russ told me, “With people who were volunteers, there is a different approach to you. They are more open. And these people who never joined an open source community, it's not the same. They are not so open. And me as a volunteer with them, they need to be sure that when I'm talking with them, I am aware of the NDA, I am a person you can talk to about

these kind of things without problems." With the latter group, the NDA was a heuristic device for "being sure" about a contributor. How the NDA is referenced, and who appeals to its legal authority, matters for its symbolic relevance in the community.

Community members also referenced past problems that undermined the trust between newcomer employees and community members. I never learned of the problems in detail, but they were discussed in general terms when considering the NDA and the dangers of breaching trust with the firm. Though specific punishments were left unmentioned, everyone involved in the NDA regime had a vague understanding of the penalties for transgressions, including stigma and legal action. As a result of these past problems and penalties, new employees "need to be sure of the person and the [NDA] enables them to be sure because we signed the NDA. This is the problem they have as employees. In cases with employees that are friends, who you've known for a long time, there is no problem." Employees for whom employment constitutes their first work relationship with OpenTech appear to the community more likely to enforce the transactional nature of the NDA, to reference it in their interactions and, in so doing, appear to question the trust-based relationship with the community. In this way, the NDA, a tool for collective identity, acted as a boundary object (Star and Griesemer, 1989) with which the boundaries of the community logic, based on trust and seniority, and corporate logic, based on employment status, were navigated (Marquis, Lounsbury, Greenwood, 2011).

Beyond the symbolic importance of the NDA as a marker of trust, community members emphasized the practical benefits for collaboration. Becoming an "NDA'd"

contributor granted access to internal documentation, communication channels, and official, in-person meetings with employees. One contributor used his internal communication to better understand the technical rationale on a project. He told me that community members outside project discussions "probably don't ever consider that an API can have different sizes of surfaces or are just not aware of what it means to separate an API from the actual backend [...] There's some hobbyists that don't have any actual programming background or are very involved in actual application engineering or similar things, so they're not aware of what it means to abstract away from the actual underlying product." Where the non-NDA'd "hobbyists" were not aware of the relevant distinctions, he was able to understand the firm's engineering decisions because of his exposure to their conversations, which contributed to his actual and perceived occupational expertise. Similarly, gaining security clearance afforded by the NDA provided long-term planning benefits and access to employed personnel. Stephanie told me, "Just having contact with the whole phone book, to know who to ask about things. It's very helpful for the community. I also get to see private documents and I know where the focus goes." Community members with NDA status were both symbolically and materially closer to the decision-making processes regarding projects and programs at OpenTech, with implications for their occupational and organizational identities.

In addition, the access afforded by the NDA was useful for those working on projects with limited public visibility, as well as the community organizers who shaped their strategies around the future plans of the firm. Chris suggested, "Now I feel like I'm inside of OpenTech. For example, if I know that X project is going to be important in the

future, it's confidential now, then I can prepare with the timing of everything." Ian described his encouragement to other community members along these lines. "I pushed him to apply [. . .] to get an NDA. That's actually something that's very helpful if you want to build communities. I have the privilege of getting NDA'd when I was invited to my first All Hands." Grateful for this privilege, he went on to describe the informational benefits for organizing in the community. "The [NDA] is something that helps a lot if you want to lead and build a community because you can look ahead on the agenda and that helps a lot with steering things before they hit mass media." In other words, the NDA empowered some community members as conduits of strategic information, useful for aligning the community's short-term goals with the medium- or long-term goals of the firm. In general, then, the NDA and its informational benefit was one way in which the community extracted guidance from the firm in aligning their goals and activities.

With the guidance afforded by the NDA came burdens of navigating membership in the community. Access to resources via the NDA was selectively granted and, according to the firm, found primarily among those who worked in the community for several years. Community leaders with NDAs, like Chris and Ian, were willing to carefully self-censor when sharing their privileged perspective with community members, such that the public discussion on message boards was largely devoid of confidential detail. As he told me, "You know about upcoming changes and you can't just make it a part of the community [...] If people talk to you, you can share, sometimes, a little bit more than they would know otherwise. You need to be careful with what you are allowed to say, but that works pretty well." Providing me with an example, Ian described his

support to a contributor without the NDA who wanted to plan tasks for his team. “When he basically told me his initial plan,” Ian demurred, “I was already saying like, ‘Uhh… I don't think those will be the focus points of OpenTech for the next year.’” Ian passed along the firm’s directional guidance but did so implicitly to avoid running afoul of the NDA. Delicately kept in the dark about the firm’s plans, Ian’s colleague altered his community planning roadmap and pursued NDA access to gain the advance perspective held by the firm.

The work and risks of selective information sharing fell to NDA’d community members in a manner similar to employees, but without the firm’s support system to navigate interaction with the public. In an employee on-boarding session, the orientation leader stressed the responsibilities of employees to guard information, urging them to rely on the organization if they were unsure about information sharing. He began by encouraging open dialogue but cautioned not to discuss organizational goals or strategy. “If you want to talk to community members about what you’re working on, why you think it matters, all that stuff, please absolutely do that and invite people to participate in the work that we’re doing.“ He then acknowledged that things can go wrong when communicating internal information, but reassured the group that the firm will help shoulder the burden. “Ask your manager, ask me, ask HR, but do not think that you have to suffer this kind of thing yourself. We know what the Internet can be and it’s not a uniformly positive experience, but it’s also not one that you need to suffer silently on this organization’s behalf.” In this vein, the firm’s public relations team was available to handle employee inquiries about information sharing to community members and the

press. Community members did not have these resources with which to navigate information sharing.

The unequal distribution of NDA access and its effects were made apparent to those with and without NDA in spaces of community collaboration, including the central message board. Reflecting on this inequality, one community member told me, “I'm NDA'd. I know some of the NDA'd things. I see people that are NDA'd, too. There's like this feeling of there being an inner circle now with NDA and people on the outside that don't get some things [...] Seeing that there are circles of users that don't have NDA and they're really confused by what's going on and it's happening in the same discussion on the same forum, essentially, as people discussing the actual thing that are NDA’d and can talk about it in a different perspective.” The presence of NDA led to status distinctions within the community owing to its relationship with the firm. As in the case of Ian’s colleague, these distinctions complicated the initiatives of those who lacked contextual knowledge of the firm’s plans. Those granted such knowledge were also disadvantaged by the information asymmetry, as they carefully maneuvered around confidential material, practicing self-censorship with fellow community members whom they otherwise trusted. At these points, the disjuncture between the community and corporate logic was made salient.

Furthermore, NDA access to decision-making processes shaped impressions of the firm and its leadership among community members. In particular, it was credited with providing interactions that led to understanding, and perhaps acquiescence, among community members of the firm’s decisions. As Nathan told me, “I think that's

something important to do because that creates bonds between people. [...] I think that makes the community strong and everybody's more engaged, working on it." To provide an illustration, Nathan described his in-person meetings at a working session with employees. Because of his help in developing certain software features, Nathan already interacted with employees online at least once a week. "I know them personally now," he said. This familiarity did not change, but he continued to describe the impact of his attendance, saying, "It mostly changed my confidence in their decision making, I guess. I trust them a lot more with the decisions they make now [...] It meant I could talk with them and they could make their arguments in person, with spoken language." Nathan, along with his fellow community members, had fundamental differences of opinion regarding a product decision, but his access to in-person meetings made him a strong supporter of the firm's position. "After talking to the team there, I saw that they were mostly aware of most of those problems already and thinking about solutions." Better knowledge of their intentions, communicated with the "interactivity" of an in-person meeting, helped shift his position.

In sum, the access afforded by the NDA supported the alignment of community and organizational identity in some cases, yet it also helped reinforce divisions in others. The NDA not only constructed the perceived distance between members of the two groups, community and company but was also subsequently seen as a bridging mechanism between them as well. Like Nathan, Ian noted the bridging influence of the NDA to align his perspective with the company's decisions. He told me, *"*In the end, I guess my point even got stronger by getting more insight [...] These things I really liked

and look up to the people who made these decisions." Tellingly, I did not witness examples of access leading to disaffection with the decisions of the company, but instead found that community members changed in line with the positions of OpenTech's employees.

**Discussion and Conclusion**

The foregoing analysis demonstrates the relationship between occupational and organizational identities and the production of consent in two crowdsourced work arrangements. Understanding these processes sheds light on the balancing act between autonomy and control absent employment relationships, wherein reciprocal obligations between workers and firms are relatively limited. To summarize, at CrowdInc, assumptions of shared organizational identity, having been established through socialization, set the stage for consent. Community members and employees alike appealed to this collective identity as ways of activating effort: to grow the company, to work more efficiently, and to provide ingenious solutions to problems. Occupational identity was interwoven with organizational identity and strongly linked to the services provided by workers to the firm.

As it related to the labor process, the dynamics of identity construction were different at OpenTech, where organizational membership was seen as attained and maintained rather than given. In their review of the collective identity literature, Polletta and Jasper suggest that "organizers often concentrate on recasting constituents' identities to include participation as one of the responsibilities or benefits of group

membership" (2001:292). In establishing participation as a benefit of group membership, those who manage collective identity, typically understood as social movement organizers, frequently construct boundaries to convey insider and outsider status. A similar dynamic unfolded in the OpenTech setting, wherein the legal codification of trust-based collaboration gave those community members with "visibility" an organizational identity claim to protect and others one to strive toward. This happened despite the community and the company recognizing the legal boundaries of formal membership in the firm, a status limited to employees. Where the distinction was made salient, as in dealings with inflexible or unfamiliar employees, community members looked toward occupational identity, as mission-driven collaborators in a local or functional group, to justify their effort or involvement.

Additional work on autonomy and control in non-standard employment is necessary, especially as firms continue to struggle with the jurisdictions of their control in crowdsourced work arrangements. Of course, firms are legally unable to direct the task activity of non-employed workers, so it may be the case that alternative sources of control, such as the sociotechnical and identity-related, become operative. These alternative sources, as Mears tells us, activate "symbolic benefits that workers pursue in addition to, and even in place of, wages" (2015:1120). Like the NDA at OpenTech, which offered some measure of organizational membership in exchange for certain behaviors, new ways of engaging external workers on the basis of identification may be developed if firms continue to eschew employment relationships when coordinating work.

Indeed, these forms of engagement may come in place of wages, as the present study included both paid and unpaid workers. Yet, even in situations with performance-based pay, these forms of control may be important. After all, strong identification with the firm's mission was an obvious motivation for the OpenTech community, but similar dynamics existed at CrowdInc, where we might have expected the familiar explanations of incentive-based compensation, production games, and investment to be most applicable. Further, in a manner similar to Mears' (2015) case, community members and employees at OpenTech felt it important to construe their task requests of external workers as opportunities, appropriate for volunteers, rather than instructions, appropriate for employees, to minimize the appearance of work. However, this relational work notwithstanding, there was no general tendency on the part of community members to view their efforts as distinct from work. In fact, community members of both groups practiced just the opposite pattern: emphasizing to me the extent of their efforts on behalf of their respective firms. They wore their commitment as markers of organizational and occupational membership, regardless of compensation, rather than evidence of perceived exploitation.

The present study also offers a new way to apply the theory of collective identity, which emerged and received the most discussion from scholars of social movements (Gamson, 1991) rather than those of work and occupations. The literature on organizations and occupations, while acknowledging organizational identity and occupational community, is limited in its discussion of collective identity as such. This is perhaps because membership in firms and occupations was largely a binary issue, often

tied to membership in, or passage through, formal organizations like firms and professional schools. One's claim to membership was tied to an employment contract or perhaps to a certification, as in occupations with credentialing regimes. Certainly, physical co-presence was a compelling proxy for membership prior to the emergence of distributed work on the Internet. However, here we see the top-down and bottom-up management of collective identity, often involving sociotechnical boundary objects, by individuals with perceived responsibilities to a firm rather than commitments to a social movement. In the interest of the collective, they are motivated to work alongside their peers, variously seen as members of the community or the firm, despite salient status differences and incentives to free ride.

# Chapter 6: Implications for Theory and the Future of Work

> "Besides the society of faith, of family, and of politics, there is one other [. . .] that of all workers in the same sort, in association, all who cooperate in the same function; that is, the occupational group or corporation. Identity of origin, culture, and occupation makes occupational activity the richest sort of material for a common life." (Durkheim, *Suicide,* 1951: 578)

In the preceding chapters, I have explored three settings of crowdsourced work that together represent the forefront of new organizational and occupational forms. Because they were different, analysis of these cases surfaced patterns in the current trend toward crowdsourced work. First, and perhaps most importantly, is the fact that occupational community can adopt heretofore unexplored forms online. Crowdsourced workers in each setting self-identified as members of work-based communities distinct from, although influenced by, formal organizations. Second, organizational boundaries, whether regarded as blurred, expanded, closed, or whatever, are negotiated by crowdsourced workers, employees, and sociotechnical infrastructure, in the course of everyday work. These boundaries develop in the process of socialization, influenced through efforts of the occupational group and employees of the organization, and relearned as individuals undertake the work of the firm. Third, the identification with occupational communities, distinctive as they are from the organizations, matters for the production of consent in the labor process. In place of employment security and benefits, firms will likely continue to construct membership in ways that enable group identity formation.

In this chapter, I will first briefly summarize the findings of the preceding empirical chapters. I will then discuss the theoretical implications of this study, along with the practical implications for the future of work and directions for new research.

**Summary**

In Part I, I argued creative freelancers found collective strategies in an occupational community developed exclusively online. These individuals offered finished virtual goods to Game Central as components in the firm's video game production, but received limited feedback regarding product direction and work process. If they were successful, payment for their efforts was sporadic and difficult to predict. Further, individuals with a range of skills participated, which meant that experts and amateurs were in competition, though the latter began with little sense of how to develop their skills. In these ways, the creative freelancers faced challenges of communication, compensation, and career common to many contingent workers, yet their response to these challenges was unique. Although many assume crowdsourced workers are atomized in their exchange, these individuals were not isolated. Instead, they were embedded in an occupational community in which they contributed and drew resources. The findings in Part I correct the prevailing narrative of crowdsourced work as a form of atomized exchange and highlights several occupational influences apart from formal organizations.

In Part II, I built upon the foundation established in Part I to further elaborate the nature of organizational boundaries and occupational influences in crowdsourced work. I compared OpenTech and CrowdInc, two firms with differing models of incorporating external workers, but similar intentions to rely on their labor and construct organizational

membership broadly, beyond the boundaries of employment. At CrowdInc, these efforts were largely successful, as crowdsourced workers came to understand their role in the firm as a function of mutual dependence in the occupational community. In contrast, crowdsourced workers at OpenTech found their community to be distinct from the organization and the boundary between the two was understood to be problematic among participants. Nonetheless, OpenTech maintained committed participants who were drawn to the mission of the firm and their occupational community. Part II details the approach of two firms to socialization of crowdsourced workers and shows how identity construction matters for the production of consent in crowdsourced work.

## Implications for Theory in Organizations, Occupations, and Work

### *Identity and Organizational Boundaries*

As outlined at the outset of this dissertation, scholars have typically discussed organizational boundaries at the macro level, focusing on inter-organizational relationships between suppliers, strategic partners, and clients of firms. The experiences of workers navigating such boundaries has mostly been obscured and rarely problematized. Interactionist accounts of boundary construction have focused on occupational collaboration and contestation within firms (Bechky, 2003a; Kellogg, Orlikowski, Yates, 2006; DiBenigno and Kellogg, 2014; Huising, 2015), but these studies tend to take the organizational boundary as a given in setting the scope of investigation. More work is needed on the identity conception of boundaries, which focuses on the "who we are" aspect of organizational action (Santos and Eisenhardt, 2005:500).

The existing sociological understanding of organizational boundaries may be obscuring the reality of boundary construction around firms, especially as workers themselves are increasingly interacting with firms from positions of unsettled, expectant, or contested organizational membership. Bringing work back in (Barley and Kunda, 2001) to the study of organizational boundaries is a necessary step in understanding the future of work. The present study represents an early move in this direction, but more work is needed on organizational identity among different categories of workers and the implications for organizational learning and performance.

For instance, workers may soon find themselves engaged with multiple firms and navigating multiple organizational affiliations in the process. As one participant told me, it's easy enough to work for OpenTech from his employer's office because he is given the flexibility to participate in video calls, use conference rooms, and host events. Although many of the crowdsourced workers studied in this project did maintain multiple affiliations, my data collection was exclusively directed toward experiences with each focal firm. Future research should consider the relevance of these multiple, simultaneous affiliations for collective identity formation among workers, as well as the strategic implications for firms. The literature on organizational identity (Albert and Whetten, 1985; Dutton and Dukerich, 1991; Ramarajan, 2014) has yet to confront these intersecting identities as workers juggle multiple affiliations.

One implication of the findings is that firms' boundaries may be more contentious, and perhaps more dependent on interactional processes, than previously theorized. Of course, decisions around the legal boundaries of the firm, regarding

strategic partnerships, governance, and employment, are driven by managers and owners of firms. However, the realities of organizational identity, or who considers themselves "inside" and "outside" of a given firm, may depend on factors beyond the reach of hierarchical control. For instance, those at OpenTech hoped to construct a far-reaching organizational identity to support their goals of broad-based participation, yet the development of identity entailed experiential boundaries mostly synonymous with the legal boundary of employment. It was only selective inclusion through the NDA that allowed some to see "inside" the firm, but the evidence does not suggest this outcome arose from deliberate organizational design by leaders at OpenTech.

*The Internet and Occupational Organizing*

Although so far overlooked in the burgeoning literature on crowdsourcing, the preceding chapters highlight the relevance of occupational influences on the experiences of crowdsourced workers. Echoing recent calls for new occupational scholarship (Anteby, Chan, and DeBenigno, 2016), the findings indicate a need for greater scholarly attention to online occupational activity as relevant for understanding work, technology, and occupations in the twenty-first century. Although the findings may be most applicable to nascent occupations that work exclusively online, future research should reconsider established occupational communities with an eye to online meeting places. To this end, we might consider how traditional sources of occupational knowledge are circumvented or eclipsed, as when sociologists advance theories on blogs rather than in peer-reviewed journals (Carrigan, 2016). We might also consider occupational learning and coordination

that happens outside established organizational forms, as when mechanics trade parts and offer technical guidance on message boards rather than in garages or vocational schools.

Although it appears occupational communities have adapted or emerged alongside changes to information and communication technology, theorizing around occupational organizing has not. Drawing on the findings presented here, the often overlooked spaces of online information sharing matter for occupational learning outside of formal organizations. Future scholarship should build theory on online meeting places, such as StackExchange, Reddit, and YouTube, as central sites of occupational knowledge creation and dissemination. As it stands, these spaces are either ignored in the literature or instead treated as sideshows of limited significance to more familiar organizational forms. Often, they are viewed as spaces challenging the expertise claims of professionals rather than conduits of expert practice or considered only as tools used for knowledge dissemination within firms (Hwang, Sing, and Argote, 2015; Leonardi, 2014; Leonardi, 2015). These perspectives have caused students of occupations to overlook online communities as relevant for occupational learning, particularly in alternative work arrangements. If new generations of workers identify with occupations apart from employment in firms or outside of formal training programs, these online meeting places may gain new significance in socialization, shaping the identities and expertise of new occupational members.

Sociologists of work and occupations should aim to better understand the relevance of these influences in current employment trends. Although beyond the scope of this dissertation, future research should develop a typology of occupational institutions

that includes the online meeting places of occupational communities. As most Internet users know, considerable variation exists in the resources found online, from spaces that facilitate active collaboration to websites that host instructional documentation and listservs offering career advice in nascent occupations. Beyond the truly helpful exists an equally large body of useless, misleading, or patently malicious material. It is worth theorizing the variation across these spaces, such as the message boards utilized by the creative freelancers at Game Central and the chat applications relied upon by crowdsourced workers at OpenTech and CrowdInc. Perhaps these are qualitatively different than the popular Uber and Lyft driver message boards, which host discussions about the best driving techniques, how to establish retirement accounts, and tips for communicating with the firms themselves. How do newcomers distinguish the good from the bad, if at all, and how do they make sense of their new occupations in the process? Before answering those questions, future scholarship should hold the occupational group constant, gather data on the online presence of the group, and construct ideal typical meeting places.

These ideal types likely have differential impact on issues such as the jurisdictional claims made by emerging occupations, labor market dynamics, skills training, and labor relations. One avenue of exploration would entail comparative research on the coordinating functions among occupational communities with and without online meeting places. Of course, occupations not involved in digital production should be a central focus. For instance, facing limited guidance from academic departments, adjunct professors in certain fields may participate in online meeting places

to find syllabi, lesson plans, and strategies for managing their temporary status, thereby offering an alternative source of occupational embeddedness with implications for organizational performance (West, 2010).

Among established occupations facing pressures toward contingent work, one might ask whether these spaces of knowledge sharing promote a unified occupational community among contingent and employed practitioners or instead promote occupational splintering along the lines of organizational membership. For example, scholars could examine the ways in which ethical norms and the division of labor among freelance journalists develop apart from, but in reference to, newsrooms. In Part I, freelancers interacted with employed artists and developers in online meeting places, promoting a sense of shared identity and spreading industry-standard practice, yet these dynamics are likely different among occupations with strong credentialing regimes and high barriers to entry.

Further, although a central focus of much sociological literature on occupations, I found little evidence of inter or intra-occupational contestation in these settings. This was surprising, as Lifshitz-Assaf (2017) examined such contestation when NASA invited open participation and found experts were divided on how to incorporate the efforts of outsiders. At NASA, some employees refashioned their occupational identities to retain a sense of expertise in their work, while others avoided engagement with outside sources of knowledge. Her work not only demonstrates the flexibility of occupational identity within apparently similar occupational categories, but also the perceived threat posed by organizationally-sanctioned inclusion of outsiders in expert practice. The present settings

showed no obvious signs of such identity transformation among employees. However, at OpenTech, I did identify growing reluctance to collaborate fully with crowdsourced workers, reluctance that was enabled and reinforced by employee-specific communication software. Future research should adopt a longitudinal design to capture long-term trends in jurisdictional contestation when firms rely on external workers.

## Implications for the Future of Work

### *Motivations Beyond the Employment Contract*

A long trend away from standard employment has only accelerated with the adoption of crowdsourced work arrangements. One unforeseen development in the introduction of these approaches is that diverse motivations become operative for organizations accustomed to traditional incentives. As shown, occupational learning to progress on external career ladders was an explicit driver of participation, particularly at Game Central. Gaining work-related experience was thus a partial, although perhaps inferior substitute for predictability on an internal career ladder. In addition, organizational identification became its own motivating force, as community members at OpenTech felt external to the firm and sought ways to gain internal visibility and a sense of organizational membership. Affiliation, or being a "known quantity" in the words of one community member, created an incentive structure outside of employed compensation. Thus, like earlier forms of contingent work, crowdsourced work engages non-traditional motivations in relation to the firm, those that are distinct from the typical incentive structure. Firms that come to successfully adopt crowdsourcing arrangements

will likely rely on these motivations, as well as develop new ways to foster commitment among their external workforces. It seems certain that the future of work will be a future of diverse motivations and incentive structures, at least compared to twentieth-century employment.

Given the rapidly evolving nature of affiliations between firms and workers, it is necessary for policymakers to reevaluate the criteria of employment protection. In so doing, the understanding of employment should be updated to confront the new realities of organizational identity. Harris and Krueger (2015) advocate for a separate employment category known as the *independent worker.* The new category is meant to capture those who have considerable discretion over their schedules and affiliations with multiple clients, but who rely on intermediary organizations that enforce certain aspects of the work process. Alternatively, many cases currently before the courts suggest reclassification of certain independent contracting as employed work on the basis of organizational control and the centrality of contractors to firms' profitability (Weil, 2017). Based on the work described here, it may be difficult to re-classify these workers on the basis of control, as enforcement by firms is an obscure and moving target, enshrined in software, articulated informally through communication between workers and communities, and subject to change without forewarning. Whether the future holds a new category or a reconsideration of the existing categories, the resulting conception should address an expanded range of control processes, beyond traditional compensation incentives and employment contracts. The question of organizational membership is not

merely theoretical, but instead matters for the protection and benefits of external workers who labor on behalf of firms.

*Labor Relations in the External Workforce*

Finally, the absence of one organizing tendency is worth addressing. The forms of collective action explored here all worked to support the goals of the three firms. Although at some points crowdsourced workers found ways to realize the interpretive flexibility of technologies or programs designed or administered by the firms, the work generally proceeded along the lines envisioned by the firms. Of course, workers occasionally expressed frustration regarding aspects of their work arrangements or career prospects, or regretted certain decisions made by the respective firms. These deviations were to be expected among any group responding to leadership or managing the expectations of clients, but I did not witness examples of collective opposition to the practices of the firms. On the contrary, crowdsourced workers consistently sought more control at the hands of the firms.

Scholars who consider the future of work often wonder about the implications for labor relations in the absence of standard employment. The prospects for organizing labor seem at once promising, as new forms of online communication make it possible to connect similarly situated workers in different locations, but also troubling given that the legal status of independent contractors has so far precluded collective bargaining rights. Further still, as we've seen in this dissertation, firms wield considerable discretion in the work arrangements of those laboring on a contingent basis. At least in the settings described here, the flexibility remaining with crowdsourced workers in these

arrangements is often sacrificed through efforts to better serve firms. Rather than heralding a new era of peer production and the decline of the corporate form (Powell, 2016), the findings of this study suggest bureaucratic firms will continue to rely on the efforts of non-employed communities with little challenge to their primacy and little or no collective resistance to decision making within the firm on behalf of external workers. Contrary to O'Mahony and Lakhani (2011), it would seem that these communities will continue to exist in the shadows of firms rather than the other way around.

**Limitations**

The study suffers from several limitations related to the manner and extent of data collection. To begin, I had hoped to achieve greater symmetry across the cases. For instance, although I planned to gather data on Game Central employees as they scrutinized freelancer submissions, provided limited feedback, and adjusted their work process to incorporate freelancers' work, I was unable to access their work at that level. Similarly, OpenTech and CrowdInc were relatively forthcoming regarding the collaborative work between employees and crowdsourced workers, yet there were imbalances in data collection. Although I could access many synchronous interactions between employees and crowdsourced workers at CrowdInc, this project-level work was less visible to me at OpenTech. Where possible, I treated differential access as data itself, as reflections of each firm's approach to its community of crowdsourced workers. Nonetheless, future work should strive to collect data more evenly across whichever

boundaries are salient in the field site, whether they are boundaries between employee and non-employee, organization and community, or something else entirely.

Along with the "where" of data collection, the study is also limited by the "when" and the "how." Although I studied changes over time, I was limited to those that could be observed in relatively short windows of data collection. At OpenTech and CrowdInc, I observed processes, both socialization and control, in compressed timeframe, with roughly six months of focused attention in each setting. Likewise, the activities described at Game Central occurred as the firm was regularly tweaking its approach to the platform, a state of constant revision common among software companies. I was offered a glimpse of a relatively unsettled period within which creative freelancers built and borrowed the resources of their occupational community. The downstream outcomes of these processes for those I studied are therefore beyond the scope of the analysis. For the workers themselves, I also lacked observational data on the timeframe prior to working with these firms, although I devoted considerable time to understanding the work and educational backgrounds of each participant through interviews. It will be necessary to study the processes described here over a longer time frame, perhaps focusing on the evolution of one firm and its community to construct time-sensitive process models.

Additionally, to understand the full picture of the crowdsourced work experience, I hoped to gather at least some data through physical co-presence. I wanted to see the workstations in context and outside the prism of digital communication, as I had for the employees of CrowdInc, OpenTech, and even Game Central. For instance, I discovered some workers at CrowdInc relied on carefully built desk setups with multiple monitors

and powerful computers and I knew several OpenTech community members who worked on OpenTech projects from the offices of their employers. Although I wanted to study these contexts systematically, the distributed nature of the communities made this a near impossibility. Instead, I opted to follow the methodological advice of digital ethnographers who gain co-presence through immersion in the online settings of their research. As a result, the findings lack analysis of the physical contexts, as well as the ways in which work tasks were integrated into the broader lives of crowdsourced workers. Perhaps a novel data collection strategy could incorporate remote images or video drawn from the physical contexts of each study participant.

Finally, readers may question the generalizability of these findings beyond the high-technology industry broadly and software companies in particular. With additional resources and access, the study could have included cases from other industries. However, in studying three different crowdsourcing arrangements, each with different tasks and models for incorporating crowdsourcing work, I hoped to show patterns across contexts that may hold in a variety of industries. As cost pressures grow and new technologies emerge, it is possible that other knowledge-intensive industries that are presently characterized by employment in formal organizations, such as law, business consulting, accounting, and engineering, will see the rise of non-employee labor, distributed via the Internet to crowds with amateur and expert skills.

## Conclusion

This dissertation is a first step toward understanding the forms, identities, and practices that comprise crowdsourcing and with it the future of work. It remains to be seen if large-scale reliance on external workers will continue to grow among firms as it has in the past decade. It may be the case that firms renew focus on employment contracts and eschew the efforts of non-employees. Such a path could see firms in many sectors again cultivating talent through internal career ladders and embracing commitments between employer and employee. Perhaps the appeal of crowdsourcing as a way to access diverse opinions may be eclipsed by other techniques. Already, there are signs that high-technology companies are incorporating outside perspectives more deeply in the design process through user-focused research and development (Fayard, Stigliani, and Bechky, 2016). In theory, these programs broaden the search potential of firms to include consumer voice without relying on the productive activity of non-employees. However, it is hard to imagine a return to the lengthy payrolls of the largest firms, especially when new entrants to the labor market no longer expect single-employer careers. One thing that is certain: scholars will be kept busy as the near future of work unfolds.

New technologies will no doubt change the patterns of association around firms. Sociologists have been slow to appreciate the implications of the Internet for occupational affiliation, yet studying workers with unconventional relationships to formal organizations shows how important these tools have become for work in the twenty-first century. Understanding the spaces of association and identity claims of those working

remotely, on a contingent basis, or in the crowd will be crucial to a productive sociology of organizations, occupations, and work.

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