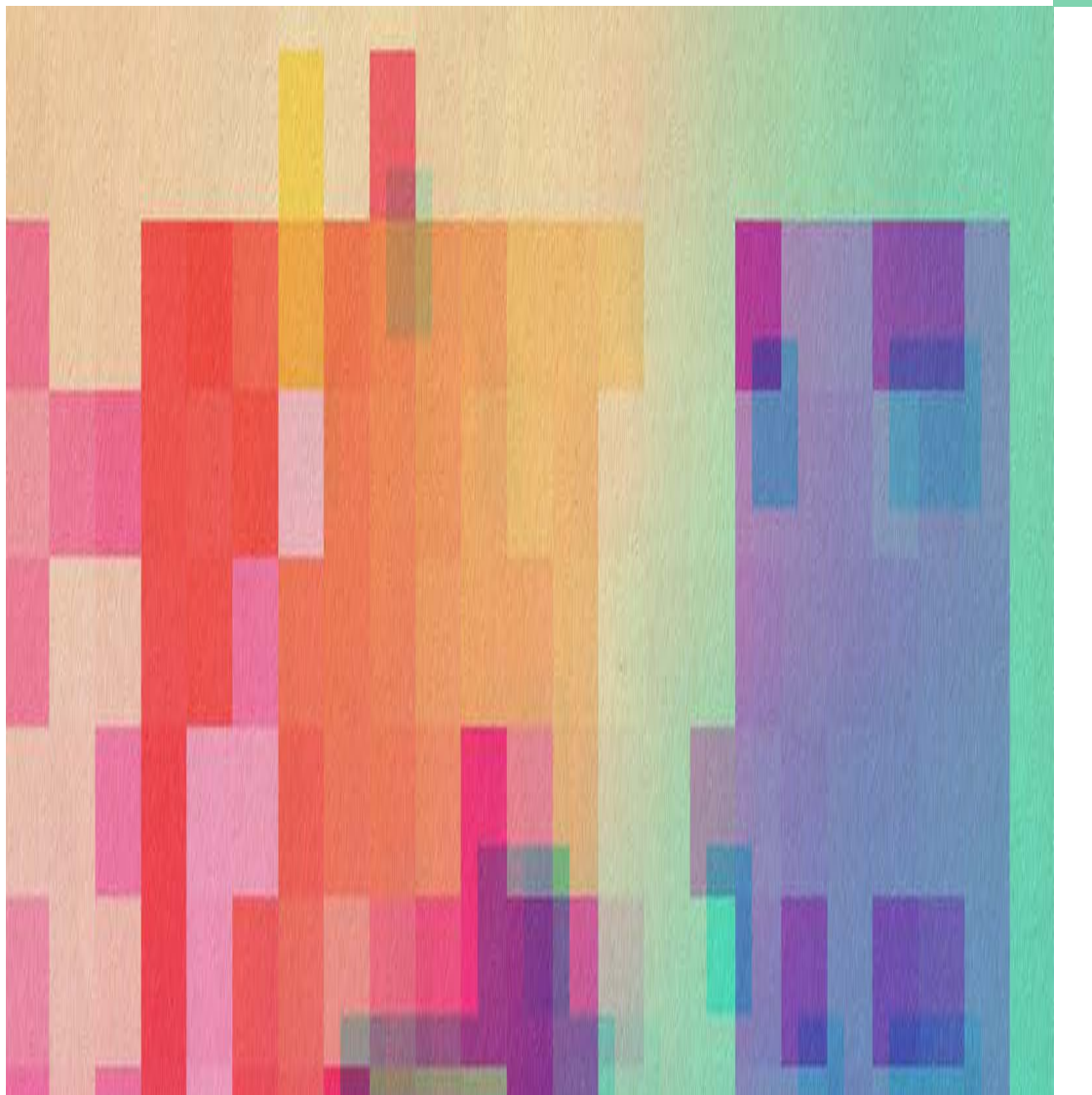Greig de Peuter   Gemma de Verteuil   Salome Machaka

Co-operatives, Work, and the Digital Economy

A Knowledge Synthesis Report

Summary

This report surveys literature on co-operative approaches to improving work and livelihoods in the digital economy. We begin by introducing the co-operative model and the claim that co-operatives—democratically owned and governed businesses—are a promising tool to counter a range of problems of work in digital capitalism, from worker disempowerment to weak social protections. We go on to discuss concepts updating co-operative theory and practice for the digital age, including platform cooperativism, open cooperativism, and distributed co-operative organizations. Next, we outline some of the ways the co-operative form has been adopted by and for different groups of workers, including self-employed workers, location-based platform workers in the on-demand economy, technologists and communication professionals, and data subjects.

While the reviewed literature presents evidence of co-ops' potential to improve working conditions and mitigate power asymmetries in the digital economy, this report also summarizes discussions of the challenges co-ops face, such as access to capital, public awareness of co-ops, and business development support. We next explore perspectives on the supporting infrastructure necessary to overcome these challenges and expand worker co-ops' presence in the digital economy, including enabling legislation and policy; alternative financing models; technical assistance for co-op business development; co-operation among co-operatives, particularly via the formation of federations for sharing technology; and increased awareness of the co-op model at strategic sites of learning and new business formation.

Returning to the two defining structural features of co-operatives, we go on to identify some examples of what democratic ownership and collective governance look like in practice in the digital field. We note, for instance, a co-operative shaping-of-technology dynamic, where co-op members have a say in the design of the technologies that organize their work. Despite the promise of co-ops in digital economy contexts, the literature cautions against viewing them as a panacea: they remain entangled with the very economic paradigms, systems of social exclusion, and cultures of work that many co-ops seek to transform. The report thus acknowledges that individual co-ops are not, by themselves, a sufficient response to problems of work and inequality in the digital economy, with several authors positioning co-operatives as one among a diversity of worker-centered organizations and strategies necessary to improve work and livelihoods in the digital economy. We conclude with suggestions for future research and policy recommendations that flow from the reviewed literature.

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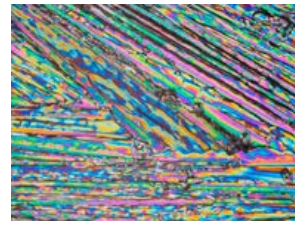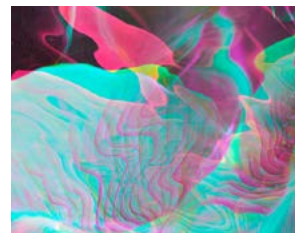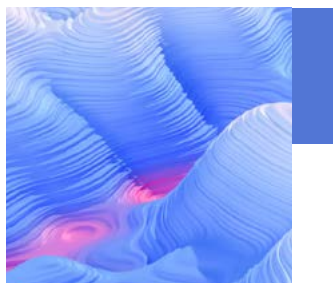
Introduction

What groups of workers have turned to the co-operative model in the digital economy? Do co-operatives have the capacity to mitigate precarity, deepen worker engagement, and combat inequality in the gig economy and digital creative industries? If co-ops are a promising means to improve livelihoods and democratize work, what are the obstacles to increasing their uptake? And what initiatives and policies have been advanced to foster supportive co-operative infrastructure in the digital age?

This report surveys recent writing on co-operative approaches to improving work and livelihoods in the digital economy, specifically in the gig economy, the tech sector, and digital creative industries. A growing number of activists, technologists, and researchers see the formation of co-operatives as a promising strategy for tackling problems of work in the context of the digital economy, from precarious employment to worker disempowerment. By co-operatives, we mean businesses that are owned and governed by their members. Of the different types of co-operatives, this report focuses on worker-owned co-operatives as well as multistakeholder co-operatives whose member-groups include workers. While the values that drive co-ops are not monolithic, the co-operative model is rooted in a commitment to economic democracy and principles such as concern for community. As member-serving organizations, co-ops are typically formed or joined to meet a previously unmet need among their members, including, in our context, the need for sustainable livelihoods and meaningful work.

Research approach

This report was produced in response to a call from the Social Sciences and Humanities Research Council of Canada and the Future Skills Centre for knowledge synthesis projects on the topic of Skills and Work in the Digital Economy. For this project on co-operatives, we combine a scoping review method with thematic analysis.[1] We have opted for a scoping review rather than a systematic literature review because of the emerging nature of our research topic and the exploratory intent of this report. A scoping review nevertheless requires "a clearly articulated scope of inquiry," which we have delimited through the set of questions noted at the start of this chapter.[2] Guided by these questions, this report provides a selective review of the literature on the co-operative

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1 See: H. Arksey and L. O'Malley (2005) "Scoping studies: Towards a methodological framework," *International Journal of Social Research Methodology* 8(1): 19-32; L.S. Nowell, J.M. Norris, D.E. White, and N.J. Moules (2017) "Thematic analysis: Striving to meet the trustworthiness criteria," *International Journal of Qualitative Methods* 16(1): 1-13.

2 D. Levac, H. Colquhoun, and K. O'Brien (2010) "Scoping studies: Advancing the methodology," *Implementation Science*, 5(69), 3.

remaking of work in the digital economy, identifying key concepts, themes, and findings in this literature, as well as noting future research directions and policy recommendations that flow from it.

The search strategy that produced our literature sample was both structured and flexible. Reflecting the call's emphasis on recent research, we restricted our searches to material published between 2015 and June 2021. We chose 2015 as the start date because that was the year of the *Platform Cooperativism: The Internet, Ownership, Democracy* conference, which popularized interest in many of the topics explored in this report. To capture the mix of scholarly, practitioner, and journalistic interest in work and co-operatives in the digital age, our searches encompassed both academic literature and grey literature. Our search terms included, for example, "platform cooperativism," "worker co-operative and digital technology," and "co-op ecosystem." From January to April 2021, we searched article databases (e.g., EBSCOhost, Factiva, Google Scholar), Twitter (e.g., #platformcoop), and the websites of co-op sector associations and publications. Snowballing, or reference tracking, was a part of our search strategy.

In addition to peer-reviewed studies, our searches generated reports from research institutes, working papers, news stories, and blog posts. Each source that we collected was assessed for inclusion in our sources list based on its substantive relevance to our research questions. We also refined our list to ensure relatively balanced coverage of our various questions. Because a large share of our search results was authored by a relatively small pool of writers, we amended our sources list to widen the range of voices represented. Through this process, an initial 364 sources were reduced to the 100 sources included in the final sample reviewed for this report.

Notes were taken on each source, including a summary of core ideas, arguments, and findings, and a selection of salient excerpts. A review of our aggregated notes (141,878 words) then informed the creation of a list of codes (n=122). Our codes (and subcodes) included, for example, "Context: Labour Problems," "Platform Cooperativism: Definitions," "Infrastructure: Incubators and Accelerators," "Challenges: Capital," and "Governance: Digital Deliberation." We coded the notes document using text analysis software Dedoose, which produced 122 discrete files of coded excerpts. The coding surfaced the themes or recurring patterns in the literature that structure this report.

Our approach is not without its limitations. First, as a selective rather than comprehensive review of literature, this knowledge synthesis report is inevitably partial. Second, our data collection and analysis were subject to the time

constraints of a short-term grant. And third, our literature sample was limited to English-language sources. Despite these limits, we hope that this review provides a useful preliminary mapping of literature on work, co-operatives, and the digital economy that other researchers can build upon.

Report overview

In the chapters that follow, we provide a thematically structured survey of the reviewed literature on work, co-operatives, and the digital economy. We begin by setting the context for this report, introducing the co-operative model and the claim that co-ops are a promising tool to counter work-related problems in the digital economy, such as the lack of social protections, discrimination, and obstacles to unionization. We go on to identify some of the concepts that aim to update cooperativism for the digital age, like platform cooperativism, open cooperativism, and distributed co-operative organizations. We next turn to concrete examples of organizing work and workers co-operatively in a variety of digital economy settings. We identify four groups of workers that have been adopting and experimenting with the co-op model: self-employed workers, especially in creative industries; location-based platform workers in the on-demand economy; technologists and communication professionals; and data subjects. Demonstrating that Canada is an important site of co-operative innovation, this report includes snapshots of a handful of co-ops in Canada's nascent co-operative digital economy (see: Appendix 1).

While this report presents evidence of co-ops' potential to improve workers' livelihoods and counter asymmetries of power in the digital economy, we also address the common challenges co-ops face, including access to capital, public awareness of the co-op model, and business development support. We then consider the co-operative infrastructure regarded as necessary to overcome these challenges and expand the presence of worker co-ops in the digital economy. We flag five elements of the co-op-friendly "ecosystem" highlighted in the literature: enabling legislation and policy; alternative financing models; technical assistance for co-operative business development, including co-op-oriented tech incubators; co-operation among co-operatives, particularly via the formation of federations for sharing technology; and increased awareness of co-op models at strategic sites of learning and new business formation.

We then loop back to two defining features of the co-operative form, shared ownership and collective governance, which co-op proponents view as vital for infusing greater democracy into the digital economy. Shared ownership, according to its advocates, delivers superior social outcomes to dominant business ownership paradigms. We pay special attention to one dimension of

co-operative ownership in digital industries: a distinctly co-operative shaping-of-technology dynamic where workers have a say in the design of the technologies that organize their work.

Despite the evidence of the potential for co-ops to improve their members' working lives uncovered in this report, we also address the caution, expressed by several authors, that co-ops are not a panacea; that they remain entangled within the very economic paradigms, systems of exclusion, and cultures of work that many co-ops seek to transform. From this point of view, our report acknowledges the perspective that co-ops are not, by themselves, a sufficient response to problems of work and inequality, with contributors to the literature generally positioning them as one among a diversity of organizations and strategies necessary to improve work and livelihoods in the digital economy. We conclude with suggestions for future research and policy recommendations flowing from the reviewed literature.

Problems of Work and the Promise of Co-operatives

There has been a surge of interest in the formation of co-operatives as a strategy for countering a range of work-related problems in the digital economy, while simultaneously achieving wider beneficial social outcomes. Research on co-operatives in the digital age is an emerging, growing, and largely advocate-led field of inquiry.

artwork by Denis Kirichkov

Researchers, technologists, and activists concerned about the social implications of the remaking of work in the digital age are increasingly turning to co-operatives, businesses collectively owned and governed by their members. In our context, these members are workers or other communities involved in or impacted by the co-op's operations. The literature covered by this review documents how cooperativism—a tradition of mutual aid and economic democracy that emerged in the 19th century amid the upheavals of industrial capitalism—is being renewed in a contemporary setting where communication technologies are dramatically reshaping economic, social, and cultural life.

The reviewed literature tends to situate the discussion of co-operatives in a larger political-economic context, often signalled by concepts such as "digital capitalism" (Gurumurthy and Chami 2020) and "platform capitalism" (Papadimitropoulos 2021). As suggested by frequent invocations of "tech giants" (Gorenflo 2015) and "data monopolies" (Micheli et al. 2020, 1), there is a deep current of concern in the literature with asymmetries of power, or inequality, which Schwettmann (2019) frames, in a discussion of co-ops and the future of work, as entailing not only income inequality but also inequalities of "access," "rights," "participation," and "protection" (43).

There is no single, overarching theory of technology in the reviewed literature. But we can identify at least three intertwined general positions running through much of the writing on work, co-operatives, and the digital economy. The first is captured by Troncoso et al. (2020) when they write: "technology doesn't develop itself, it's built by people and companies with specific worldviews and intentions which underlie the aims of the code" (22). The second is that prevailing uses of digital technology in the world of work tend not only to coexist with but also to entrench and exacerbate inequalities of class, race, and gender. The third position, however, is that technology is a site of struggle. As Zygmuntowski (2018) states: "Just as new technologies allow for the creation of new apparatuses of value capture, so too, may they be used for the purpose of shared, egalitarian governance, and a sustainable business ethics" (180).

Problems of work

Addressing a diversity of occupational contexts, from ridesharing to communication design, the literature does not deny the possibility of beneficial social outcomes resulting from the prevailing digital transformation of work. Researchers acknowledge, for example, that digital labour platforms have facilitated the economic inclusion of select workers "at the world's economic margins" (Graham, Hjorth, and Lehdonvirta 2017, 138; see also: Rani et al. 2021, 18). On balance, however, this literature is skeptical of the optimistic claims associated with the digital transformation of work, such as the promise of enhanced income, flexibility, and autonomy in the on-demand economy. The general stance of the literature is that such promises have, for most workers, either failed to materialize or have been only partially delivered.

The literature provides an extensive inventory of problems of work in the digital economy. Most contributors stress that these problems have differential manifestations across multiple dimensions, including social location, occupation, country, platform, task, and whether the work is a supplemental or primary source of income. The problems of work inventoried in the literature can be grouped into five areas:

- *Strained working conditions*, particularly among platform workers and freelancers, including low pay, high fees, late payment, excessive hours, isolation, surveillance, unstable and insufficient work, lack of control over work, and downward pressure on wages in crowded labour markets (Bellini and Lucciarini, 2019, 849–850; CECOP 2021, 8; Graham, Hjorth, and Lehdonvirta 2017, 145; Rani et al. 2021, 244).

- *Lack of social protections*, which particularly affects workers in nonstandard employment, such as independent contractors, freelancers, and self-employed workers upon whom the labour models of platform companies and creative industries are predicated. By shifting risk from owners to workers, these nonstandard employment arrangements provide "limited social security" (Conaty, Bird, and Ross 2018, 21), including diminished access to unemployment insurance, exclusion from minimum wage legislation, and reduced health and safety provisions. Researchers attribute the lack of social protections to employment misclassification in the gig economy as well as to social protection frameworks that were designed around the standard employment relationship (Eum 2019, 6).

- *Discrimination and exclusion*, dimensions of which range from gender-based occupational and task segregation in the platform economy (Rani et al. 2021, 245) to expressions of racism in platform service ratings systems

(Schor and Eddy 2020, 15), and the underrepresentation of women and racialized workers in many fields within the creative industries (Boyle and Oakley 2018, 4).

Lack of transparency and voice are evident among workers who are beholden to one-sided terms of service agreements (Rani et al. 2021, 244), regulated by opaque algorithmics (Bellini and Lucciarini 2019, 846), possess "little control over their personal data" (Borkin 2019, 9), lack "bargaining power (Graham, Hjorth, and Lehdonvirta 2017, 140), and have a "weak position in negotiation with clients" (Jang 2017, 79).

Obstacles to collective action, which include the lack of self-employed workers' legal right to unionize and engage in collective bargaining, the limited presence of unions in newer creative industries, and diminished opportunities for dispersed workers to gather and build community and common cause; all challenges intensified by platform labour-market proprieties like dispersion, fragmentation, and churn (Bellini and Lucciarini 2019, 851–852); and the dis-embedding of digital labour standards "from local norms" (Graham, Hjorth, and Lehdonvirta 2017, 146).

Most of the surveyed literature was published prior to the COVID-19 pandemic. Contributions that appeared during the pandemic are clear, however, that these problems of work have been exacerbated by pandemic conditions (Herrera et al. 2020; Scholz, O'Brien, and Spicer 2021). Several authors caution, moreover, against characterizing these problems as historical novelties. Researchers stress that precarious gig work is not new: the lack of social protections available to workers in nonstandard employment in the digital economy represents a continuation of longstanding global trends toward the flexibilization of labour and the institutionalization of outsourcing (Coca 2017; Conaty, Bird, and Ross 2018, 19; Herrera et al. 2020, 8). Researchers addressing the Global South emphasize that the platform labour economy marks not the advent but the "intensification of informality" (Gurumurthy and Chami 2020). And as van Doorn (2017a) argues, the platform labour economy not only coexists with but also conceals and compounds enduring classed, raced, and gendered hierarchies of labour.

The promise of co-operatives

From legal battles over the classification of gig workers to workplace conflicts in the heart of Big Tech, the conditions of workers who are simultaneously marginalized in and vital to the digital economy have become increasingly public and contentious. Against this backdrop, Zygmuntowski (2018) invokes

Polanyi's notion of the "double movement," which posits that "every process of commodification and marketization—insofar as it aims to dis-embed the economy from society and thus subordinate social relations to the market—is closely followed by a countermovement that seeks to protect the most marginalized groups and re-embed the economy.... This is the historical condition," Zygmuntowski argues, "that has again arrived" (180). In support of this claim, the literature identifies a range of emerging collective responses to the problems of labour brought up in the previous section, including unionization, worker centre organizing, voluntary labour-standards certification, online forums for fostering solidarity, and regulatory interventions, like delinking social protections from the standard employment relationship (Graham, Hjorth, and Lehdonvirta 2017, 139; Johnston and Land-Kazlauskas 2018; Rani et al. 2021, 25–26).

The reviewed literature, however, focuses primarily on co-operative responses to work-related problems. The main proposition running through the literature is that co-operatives hold great potential to mitigate problems of work and wider asymmetries of power in the digital economy. This literature, then, is largely advocacy driven. And while academic voices in the literature span the disciplines of media studies, labour studies, and co-operative studies, one of the hallmarks of this field of inquiry is the presence of practitioner and activist perspectives from the co-op sector.

The definition of co-operatives employed in the literature is that upheld by the International Co-operative Alliance (ICA): "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise" (cited in Terrasi 2018, 18). A co-op's primary purpose is to serve and benefit a defined group of members, satisfying a need previously unmet by the market or the state. In this and other ways, co-operative enterprises have a different incentive structure than conventional businesses: "generating profit isn't the primary goal" (Hulyer 2018); rather, the objective is to optimize members' mutual benefit (McCann and Yazici 2018, 11).

More specifically, co-ops are characterized as "values-based businesses" (Hoover 2016, 108–109), with shared ownership and democratic governance consistently identified as the defining features of the co-operative model (Benkler 2016, 94; Brodsky and Mason 2021; Hall 2021; Scholz and Schneider 2016, 12). The literature points, moreover, to seven "co-operative principles" that are intended to guide co-operation in practice (Muldoon 2020, 77): "voluntary and open membership"; "democratic member control"; "members' economic participation"; "autonomy and independence"; "education, training, and in-

formation"; "cooperation among cooperatives"; and "concern for community" (ICA, cited in Troncoso et al. 2020, 29). When describing what sets co-operatives apart from traditional companies, authors also highlight the egalitarian distribution of rewards (and risks) among co-op members, "the sovereignty of collective membership," and the principle of "one member one vote, regardless of capital contribution" (Lawrence, Pendleton, and Mahmoud 2019, 9, 8).

By building social and economic justice goals into their mission and structure, co-ops are, according to one description, "purposeful by design, established to serve specific needs and populations, generating beneficial social and economic outcomes in the process" (Lawrence, Pendleton, and Mahmoud 2019, 9). Researchers associate co-operative businesses with advantages such as:

Resiliency: Co-ops have both a greater likelihood of survival in their early years as compared to conventional businesses (Borkin 2019, 14) and productivity levels that rival those of traditional companies (Lawrence, Pendleton, and Mahmoud 2019, 12);

Ameliorating inequalities: Co-ops are described as a strategy for combating "economic inequality" (Evans 2020, 4). Co-op advocates observe "lower pay inequality" within individual co-ops (Borkin 2019, 14) and how shared ownership spreads wealth more widely (Brodsky and Mason 2021). In parallel, co-ops are described as tools to "advance racial equity" (Linares and Woolard 2021, 35), with researchers highlighting cooperativism's record of offering "a path to employment for groups historically marginalized or excluded in economic life" (Spicer 2020, 327);

Worker empowerment: Co-ops give member-owners a formal voice in decision-making processes (Borkin 2019, 12). This can increase workers' "control over work practices" (Chatterton and Pusey 2019, 39; see also: Johnston and Land-Kazlauskas 2018, 31; Sandoval 2016, 62), combat a sense of economic "powerlessness" (Hall 2021), and "inspire citizenship...in an area where democracy has been absent for too long: enterprises and corporations" (Challiou, cited in Terrasi 2018, 6);

Work satisfaction: Research suggests that co-operators are generally highly satisfied with their working conditions (de Peuter et al. 2020, 32). Authors note that co-ops often have reduced staff turnover (Borkin 2019, 14), provide an antidote to precarity and isolation (Grayer 2020, 12–13), show "improved motivation" at work (Lawrence, Pendleton, and Mahmoud 2019, 12), and have workplace cultures that promote "collective self-care" (Sandoval 2017, 125).

While co-ops tend to be perceived as mostly small-scale enterprises, several contributors note that co-ops have historically helped to meet significant material needs, like "providing access to electricity, financial institutions, and employment" (Theodos, Edmonds, and Scally 2020, 18). In a study exploring what motivates young people to join a co-op—from a desire for "meaningful work" to "concrete needs" like employment—Terrasi (2018) describes co-operatives as having a "dual nature": "as associations, they are a tool in the hands of people for the realisation of their dreams, beliefs, values, and aspirations; as enterprises, they are intended to satisfy their members' economic needs" (53).

There is a lot of optimism in the literature for the potential of co-operatives. "Instead of merely envisioning an alternative future," writes Sandoval (2016), "co-operatives are the practice of building it" (65). Schwettmann (2020) cautions, however, that "cooperatives are not 'better' just because of their name or statute; they must prove their merits through tangible action" (51). To counter dominant corporate models that serve to deepen inequality and harm the planet, Orsi (2016) argues that we require "economic operating systems that can achieve the exact opposite. Cooperatives can be such an operating system if," Orsi insists, "we build them with great care" (96–97).

Alongside an emphasis on the general features of cooperativism, the literature addresses a variety of specific types of co-ops, from consumer co-ops to worker co-ops, multi-stakeholder co-ops, producer co-ops, and freelancer co-ops (Borkin 2019, 15; Eum 2019, 15; Jang 2017, 84; Novkovic 2020, 225), some of which will be discussed later in this review. And while many jurisdictions have a co-operative act under which co-operative businesses are incorporated, the literature generally adopts an inclusive view of co-operatives as businesses that identify, to varying degrees, with the co-operative principles, regardless of whether they are legally incorporated as co-ops.

In addition to an organizational and legal form, co-operatives are also described as a sector within the larger economy. Researchers refer to co-operatives' aggregate economic impact to establish the credibility of co-ops, regularly pointing to flourishing regional co-operative economies such as Mondragón (Basque, Spain) and Emilia-Romagna (Italy), as well as emerging municipal centres of co-operative experimentation like Preston (UK) (Dellot and Wallace-Stephens 2017, 32; Enochs, 2019; Hulyer 2018; Lawrence, Pendleton, and Mahmoud 2019, 25; Novkovic 2020, 226). In Canada, a report based on consultations with Canadian co-ops notes that, according to 2015 data, "(n)on-financial co-operatives reported a total business volume of $44.1B," accounted for more than 101,500 jobs, and numbered 7,887 co-ops across the country (Innovation, Science and Economic Development Canada 2019, 13). The same

report adds: "almost all stakeholders confirmed that Canada is home to one of the most innovative and growth oriented co-operative sectors in the world and that this business model harbours great potential for the Canadian economy" (1).

Despite this sense of the sector's promise, it is important in the context of this review to acknowledge Mayo's (2019) depiction of the co-operative sector's composition: "By and large, it is possible to generalise the largest co-operative enterprises worldwide as older rather than younger businesses, analogue in their focus rather than digital and typically national rather than cross-border in their operations" (21). Notwithstanding this profile, much of the literature is unified in the claim that the co-operative model is not only applicable to but could realize fresh opportunities to flourish in the digital economy. As Moxom et al. (2021) write: "Cooperatives may...find that digitalisation will pay dividends in key areas and it remains one of the most exciting areas for change within the cooperative movement" (115).

That now is an opportune moment for co-operative renewal is a common assertion in the literature. Some authors perceive a parallel between the present predicament of labour in the digital economy and the 19th century industrial-capitalist conjuncture that saw the spread of new worker organizations such as guilds, mutual benefit societies, and unions (Conaty, Bird, and Ross 2016, 12; Bellini and Lucciarini 2019, 865). Spicer (2020) observes, moreover, that among the contemporary conditions that favour co-ops is "rising popular scrutiny of mainstream economic development in the face of environmental degradation and record levels of inequality" (325). Scholars suggest that heightened concern about economic injustice makes space for co-operatives (Nicoli and Paltrinieri 2019, 817; Scholz, O'Brien, and Spicer 2021). Chatterton and Pusey (2019), for example, sense "a clear desire to create a more humane and ethical digital economy" (41), while Borkin (2019) speaks of a "growing appetite across all areas of the economy for higher ethical practices and standards of production" (23). More specifically, Novkovic (2020) attributes the uptick of interest in cooperativism, in part, to the growth of "precarious work and digitalization of labour" (229).

Authors occasionally lament the marginalization of co-operatives in present-day discussions of the tools available to advance workers' rights (Scholz, O'Brien, and Spicer 2021). Contributors to the literature generally do not argue, however, that co-ops could single-handedly remedy the range of problems that workers face. They tend to position co-operatives more modestly as one strategy among many (Boyle and Oakley 2018, 11; Eum 2020, 103; Ji 2020, 11). The literature stresses the continuing necessity of legal and regulatory in-

terventions, for example, to improve workers' livelihoods in the digital economy. At the same time, co-op advocates suggest that responses that remain limited to, say, redressing employment misclassifications are insufficient. As Schor and Eddy (2020) remark in a discussion of co-operative alternatives and the gig economy: "while regulatory action is to be welcomed, it is unlikely to fundamentally change the political economy of the sector. Large platforms will remain dominant and will mainly operate in their own interests. A deeper transformation of power will require new enterprise structures" (17).

Later in this report we explore concrete examples of such "new enterprise structures" in the gig economy, tech sector, and creative industries. For now, we note that co-operative development in these areas is often characterized in the literature as a "laboratory" of experimentation with "innovative and sustainable forms of work and employment" (CICOPA, cited in Eum 2019, 145). In this sense, the research explores the promise of co-operatives: to challenge the culture of solo-entrepreneurship (Boyle and Oakley 2018, 2); to counter worker isolation (Sandoval 2016, 65) and aggregate typically dispersed workers (Ji 2020, 29); to facilitate worker voice (Johnston and Land-Kazlauskas 2018, 19; Rani et al. 2021, 88); to humanize work in hyper-competitive environments (Sandoval 2016, 52; Sandoval 2017, 120–121); to mutualize risk, protect independence, and extend social rights among self-employed workers (Bellini and Lucciarini 2019, 865; CECOP 2021, 8); to heighten users' control over personal data (Mayo 2019, 19); and to improve institutional accountability (Pentland and Hardjono 2020; Rani et al. 2021, 88). Rather than fetishize digital technology, entrepreneurship, or individual creativity, then, the literature tends to anchor co-operation in "the working and living conditions of real individuals, evaluating itself against their needs, desires, drives, and expectations" (Nicoli and Paltrinieri 2019, 817).

Conceptualizing Co-operation in the Digital Age

Since 2015, the idea of platform cooperativism has seen significant uptake. This concept is elevating the profile of co-operatives within tech communities and heightening the interest in digital technology within the co-operative movement. In addition to platform cooperativism, however, several other concepts have been advanced in recent years to update, orient, and deepen cooperativism in the digital age, from "open cooperativism" to "distributed co-operative organizations."

artwork by Juanjo McLittle

Platform cooperativism

The concept of "platform cooperativism," the subject of significant attention in the reviewed literature, was proposed in late 2014 by Trebor Scholz, a professor of media studies at The New School in New York City (Mayo 2019). "The basic idea of platform cooperativism," according to Eum (2019), is that "new business models based on internet and on-line platforms can be combined with the cooperative model by giving ownership and controlling power to the very people who use and work through on-line platforms" (37). van Doorn (2017b) further describes platform cooperativism as uniting "an organizational structure with a storied tradition (the cooperative model) and a relatively novel computational architecture that doubles as a business model (the platform)." Ethically, platform cooperativism tends to be associated with normative commitments to democratizing ownership and governance (Borkin 2019, 10; Coca 2017; McCann and Yazici 2018, 3; Muldoon 2020, 73; Scholz 2016a, 2016b; Schneider 2018, 325), to strengthening workers' rights (Sandoval 2020, 805, van Doorn 2017b), and to sharing economic value more fairly with those in the platform economy who generate it as well as amplifying the voices of communities that may be impacted by a platform's operations (Chatterton and Pusey 2019, 38; van Doorn 2017b).

Forwarded initially in the early 2010s—in the aftermath of the 2008 financial crisis—platform cooperativism has been positioned as a critical response to a variety of foes and forces, from the "corporate sharing economy" to "Big Tech" to "platform capitalism." Scholz (2016b) recounts that he pitched the idea of platform cooperativism in response to the concentration of ownership in the ascendant platform economy, where the spaces and tools that people increasingly relied on for work, sociality, and entertainment "are all owned by a small number of deep-pocketed founders and stockholders" (21). From the outset, the concept has also been framed as a response to precarious work in the gig economy (e.g., Uber, TaskRabbit) and the performance of digital labour, or crowdwork, online (e.g., Mechanical Turk, Upwork) (Chatterton and Pusey 2019, 39; Gorenflo 2015; Novkovic 2020, 228).

Characterized as a "rallying cry" (Schneider 2018, 337), platform cooperativism aspires to surface, assemble, and provoke efforts to use the co-operative

as a social mechanism to mitigate problems of labour in the digital economy. Alongside a report by Scholz (2016a), the platform cooperativism concept was publicized through a 2015 conference organized at The New School, co-hosted by Scholz and Nathan Schneider, which gathered some 500 co-op practitioners, digital workers, technologists, and researchers (Gorenflo 2015; Mayo 2019; Schneider 2018, 323; Spitzberg 2019). Platform cooperativism can be understood as a performative concept, a term that seeks to enact, and mobilize around, that which it names.

Platform cooperativism was a path-breaking concept. At the same time, however, the literature draws attention to multiple collective projects and resonant ideas upon which this term is built. Researchers acknowledge, for instance: the co-operative platforms (e.g., Stocksy, Loconomics) that predate the concept and supplied it with prototypes and plausibility (Spitzberg 2021); a small subset of worker-owned co-ops in technology services (Schneider 2018, 323); tech co-op-friendly legal support from grassroots organizations like the Sustainable Economies Law Center (Mayo 2019); calls from within the co-operative movement for a "cooperative commons" (Schneider 2018, 323); supportive online publishing spaces like Shareable (Gorenflo 2015); hacker activities, creative commons, and free and open source software practices within critical internet culture historically (Muldoon 2020, 77; Sandoval 2020; Schneider 2018, 322); and, vitally, the co-operative tradition itself, in whose longstanding principles platform cooperativism is rooted (Muldoon 2020, 74; Pentzien 2020, 21). So, while it "brought a breath of fresh air into (the co-op movement)" (Troncoso and Utratel 2019, 68), the platform cooperativism proposition was not "starting from scratch" (Schneider 2018, 322).

Circulating rapidly among co-op practitioners and advocates, the idea of platform cooperativism has come to be described as a "movement" (Eum 2019, 36; Hoover 2016, 108; Nicoli and Paltrinieri 2019, 816–817; Novkovic 2020, 229; Schneider 2016a; van Doorn 2017b). Among this movement's elements and expressions are: several international conferences and workshops, where a new generation of co-operators and their allies are coming into contact (Spitzberg 2019); the launch of new institutional initiatives, led by Scholz, devoted to promotion, research, and community-building, including the Platform Cooperativism Consortium (PCC) and the Institute for the Cooperative Digital Economy (Mayo 2019); social media spaces, from Facebook groups to #platformcoop, journalistic coverage, and campaign organizing, such as the "Buy Twitter" campaign (Mayo 2019; Schneider 2016a); and initiatives to create practical tools to support platform cooperativism, including a project for which the PCC accepted a $1 million grant from Google.org, the charitable branch of Google (Borkin 2019, 24; Mayo 2019, 9). The traditional co-op movement's recogni-

tion of platform cooperativism is reflected in a resolution to support platform co-op development that was passed in 2017 by the International Co-operative Alliance (Mayo 2019, 9).

There is a dual quality to platform cooperativism in the literature. On the one hand, the concept labels a movement. On the other hand, it promotes the creation of individual co-operative businesses, or platform co-operatives. Early on, Scholz (2016a) suggested a strategy for platform cooperativists: "cloning the technological heart" of a dominant platform and re-embedding it in a framework of co-operative ownership and democratic governance (14). Sutton (cited in Borkin 2019) defines a platform co-op as "a digital platform that is designed to provide a service or sell a product—that is collectively owned and governed by the people who depend on and participate in it" (5). The notion of a platform co-operative can, however, be slippery (see: Schneider, cited in Mayo 2019, 18). Co-operatives that operate a "platform," for example, adopt a specific co-operative ownership and governance structure, with most platform co-ops set up as either a worker co-operative or a multistakeholder co-operative with member classes that include, but are not limited to, workers (Borkin 2019, 17; Novkovic 2020, 229). Moreover, as Pentzien (2020) remarks, currently "platform co-ops are not clearly defined legal entities" in legislation applicable to co-operatives (8).

Described by Schneider (2018) as a "space of experimentation" (322), platform cooperativism has driven much of the increased attention to the co-operative tradition in the context of the digital economy. Yet as a critical intervention that occurred at a specific political, technological, and economic conjuncture, platform cooperativism may come to be seen "as primarily a time-bound brand, oriented around mobilizing a generation of people to develop a new cooperative culture around the online economy," reflects Schneider (cited in Mayo 2019, 18). While platform cooperativism is an advocate-driven field of inquiry, the literature is not entirely devoid of critical assessment. Several writers acknowledge the currently limited number, scale, and impact of actually existing platform co-ops (Borkin 2019, 24; Mayo 2019, 8; Morozov 2016; Muldoon 2020, 74; Sandoval 2020, 809; Schor and Eddy 2020, 24). The risk of "technological solutionism," which looks to technology to fix social problems, has also been noted (Chatterton and Pusey 2019, 41). And in discussions of the politics of platform cooperativism, some contributors have posed wider strategic questions, with Duda (2016) urging platform cooperativists not to overlook "long-haul transformative organizing" (186), while Taylor (2016) warns against organizing "around abstract principles" rather than "concrete concerns" (236–237).

Extended critiques of platform cooperativism are rare, however. A notable exception is Sandoval's (2020) analysis, which highlights, first, how platform co-ops operate within capitalism and thereby confront "tensions between political goals and economic pressures," and, second, how this movement's apparent acceptance of market-friendly language and entrepreneurial sensibilities means that "platform cooperativism risks inadvertently aligning itself with a neoliberal logic it set out to overcome" (812). A second substantive critique, by van Doorn (2017b), focuses on a lingering tendency within elements of the co-operative movement to idealize "autonomy," which may deprive platform cooperativism of the support, most notably from the state, necessary to advance toward its goals. While platform cooperativism is a predominant conceptual lens in the reviewed literature, several authors introduce contending and complementary concepts that seek to address the interplay of work and co-operation in the digital economy. Two such concepts are "open cooperativism" and "distributed co-operative organizations" or "DisCOs."

Open cooperativism and DisCOs

Proponents of "open cooperativism" point out that platform co-ops, like co-ops generally, typically conform to the dominant logic of patents and copyright, which, they argue, inhibits co-operatives' contributions to and expansion of the "commons" (Papadimitropoulos 2021, 255–256). In contrast, open cooperativism's objective, write Bauwens and Kostakis (2016), is to "cultivate a commons-centric, ethical economy" (164). To this end, open cooperativism is proposed in "an effort to infuse cooperatives with the basic principles of commons-based peer production," or CBPP, a term introduced by Benkler to designate practices such as free and open source software development and peer-to-peer collaboration that are activated by "networks of people who freely organize around a common goal using shared resources and market-oriented entities that add value on top of or alongside them" (Bauwens and Kostakis 2016, 164, 163). Building upon the established co-operative principles, Bauwens and Kostakis (2016) identify open cooperativism's core principles, which include, among others: multistakeholder governance; "open value accounting," which seeks to recognize and distribute value among those who co-produce it; and active contribution to the commons, both "material (natural resources, technology) and immaterial (knowledge, culture)" (164). Open cooperativism, adds Papadimitropoulos (2021), is explicitly oriented toward "broader socio-economic and political transformation, all while being locally based" (256).

One of the cornerstones of open cooperativism is a commons-based reciprocity license, "CopyFair," a strategic device to sustain co-operators' livelihoods while simultaneously protecting and enlarging the commons. CopyFair, according to

Papadimitropoulos (2021), has "the aim not to sell but rent commons knowledge," as the licence would redirect a "stream of income from capital to the commons with the aim of securing the sustainability of the latter" (259; see also: Ridley-Duff and Bull 2021, 1438). Practically, open cooperativism envisions a scenario where conventional companies using CopyFair-licenced products or services from an open co-op would pay a licensing fee to the co-op, with the intent of retaining "surplus value entirely within the sphere of commoners/co-operators" (Sandoval 2020, 805), persistently reinvesting surplus to support the "development of open, ethical productive communities" (Bauwens and Kostakis 2016, 166). This proposal imagines a "counter" economy underpinned by a "model of open cooperativism with a friendly capitalism willing to adjust in the long run to a commons-centric society" (Papadimitropoulos 2021, 258). Put differently, open cooperativism's CopyFair regime imagines a currently subordinate economic subsystem eventually overtaking the currently dominant system. In theorizing open cooperativism, Pazaitis, Kostakis, and Bauwens (2017) draw inspiration from the activities of the New Zealand-based co-op Enspiral Networks, which, according to the authors, demonstrates the promise of merging co-operative structures and CBPP while providing "sustainable livelihoods" to worker-owners (4).

A recent addition to the constellation of concepts exploring intersections of work and co-operation in the digital economy is "distributed co-operative organization," or DisCO. The DisCO idea is informed by the experiences of the Spain-based transnational co-operative, Guerilla Media Collective, which provides translation services as well as a variety of digital communication services (Troncoso and Utratel 2019, 8). "Cooperativism," according to Troncoso and Utratel (2019), "could be viewed as a continuum," ranging from "traditional" co-ops to "platform" co-ops and "open" co-ops. Building on platform cooperativism and open cooperativism, Troncoso and Utratel root the DisCO concept in the longstanding co-operative principles while setting out to "supercharge" these principles "for viable post-capitalist futures and the digital, networked age" (34) The DisCo concept arose partly in response to communities and practices associated with "distributed autonomous organizations," particularly blockchain projects, the promise of which, for Troncoso and Utratel, is compromised by, among other factors, being "male dominated" (21) and focused on "technical solutions" detached from human relations and lived experience (8).

With the DisCO concept, Troncoso and Utratel and their collaborators (2020) name an "approach to people working together to create value in ways that are cooperative, commons-oriented and rooted in feminist economics.... DisCOs," they add, "harness the utility of tech without being completely tech-centric" (24). In addition to co-operative principles, DisCOs are anchored in seven

"guidelines for tech-savvy...socially and environmentally oriented organizations" (30, 34–47). These include open cooperativism commitments, like actively contributing to the commons (39), but also add commitments such as centring "care work" (43) and reimagining "value-producing labour" (45) as integral features of DisCO experiments in the co-creation of socio-technical protocols that make visible and more fairly compensate the labour of care within co-ops (Troncoso and Utratel 2019, 31–32).

## Co-operation as organizing strategy

Running through the reviewed literature is the sense that we are at a moment of great promise for co-operative renewal. Much of this confidence is articulated to technology. Conaty, Bird, and Ross (2018), for example, write of the "huge opportunities" presented by digital platforms "for the co-operative sector to advance forms of economic democracy..." (71). In a study of the contemporary co-operative movement in the US, Spicer (2020) observes far greater openness and strategic orientation to technology as compared to previous generations of co-operators (336). Such optimism surrounding co-operative uses of digital technology shares space in the literature with expressions of caution against fetishizing technology. On this point, co-op practitioners and developers offer vital reminders. Duda (2016), for example, sets priorities by taking guidance from experiences of community-led co-operative development, which begins "from the premise that the point of building worker cooperatives is first and foremost to create an economy owned by the people who have been traditionally locked out or pushed to the side" (184).

Duda's remarks provide context to subtle tensions in the way co-operatives are framed in the literature. Authors frequently use the term "the co-operative model," for instance. On the one hand, this singular term underscores the inflexibility of certain co-operative commitments, like shared ownership and democratic governance. On the other hand, the singular "co-operative model" conceals the heterogeneity within cooperativism, from the diversity of co-operative ownership structures to the variety of concepts that inspire and guide co-operators. The somewhat static term, "the co-operative model," can be contrasted to another way in which co-operatives are occasionally conceptualized in the literature, where they are framed as an "organizing strategy" (Ji 2020, 11; see also: Criscitiello 2016, 146), one of several modes of collective action or "methods for organizing in digitally mediated labour landscapes" (Johnston and Land-Kazlauskas 2018, 3–4).

Contours of Co-operation
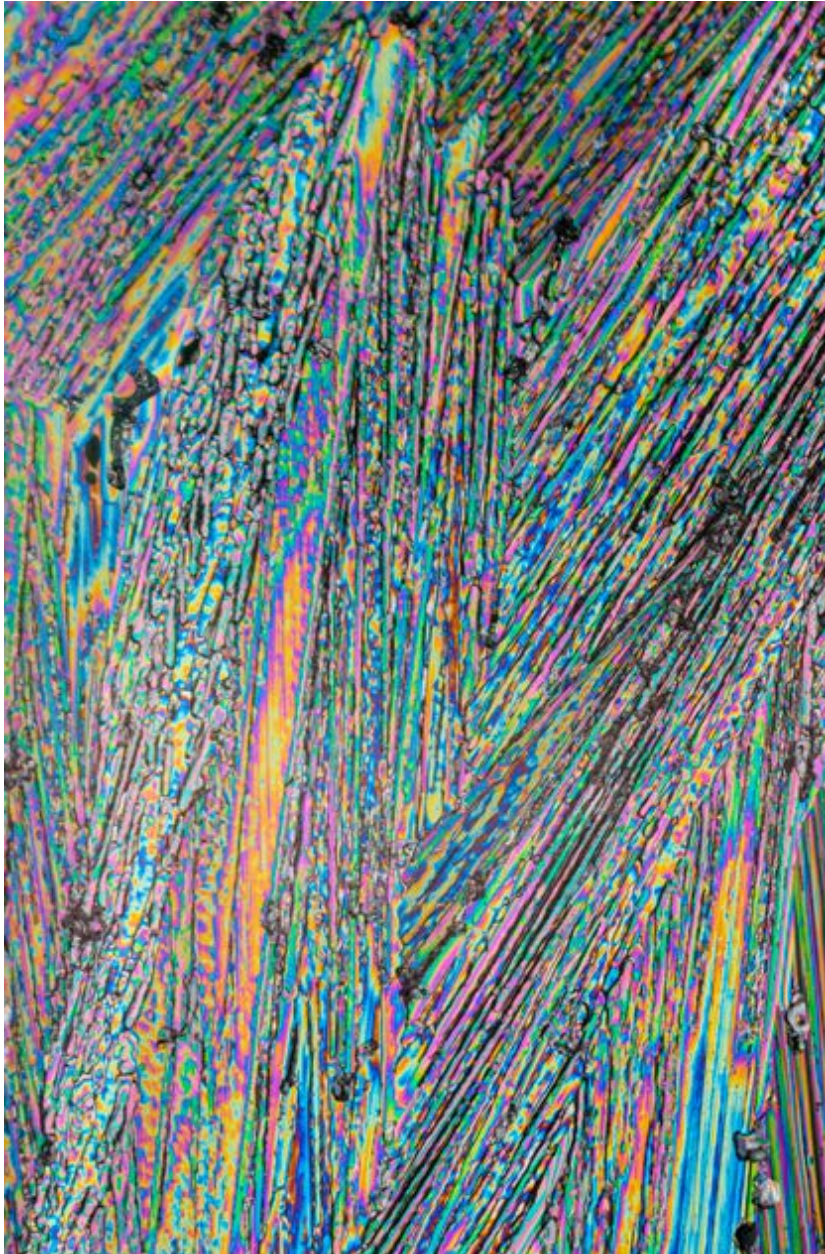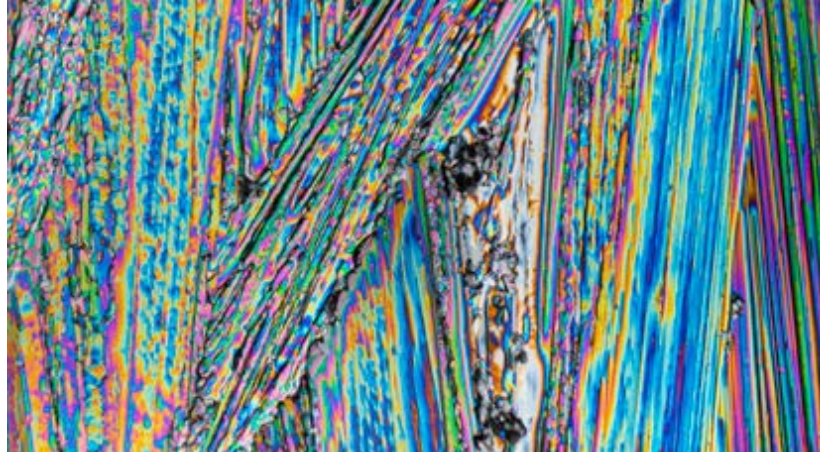
Efforts to bridge co-operatives, work, and digital technologies are unfolding among four (sometimes overlapping) groups of workers: 1) freelancers and other self-employed workers across a range of sectors, particularly creative industries; 2) location-based platform workers in the on-demand economy; 3) technologists and communication professionals; and 4) data subjects.

artwork by Robert Kohlhuber

This chapter draws on the reviewed literature to provide a rough sketch of the contours of co-operation in the digital economy. Several authors contribute to the mapping of this emergent landscape by proposing typologies of platform co-ops (Borkin 2019, 18–19; Muldoon 2020, 75–76; Scholz 2016a, 14–18; Scholz 2017). In the co-operative sector, it is common for co-ops to be categorized by their ownership structure. Specifying this dimension of co-op type is important because it clarifies the need that an individual co-op sets out to meet, the community that it aims to bring together, and the relations that govern it (Hoover 2016, 108–110). In our context, then, labelling a co-operative a "platform co-op" is, on its own, insufficient because a platform co-op might be owned entirely by workers (a "worker co-op") or it could be owned by members on both sides of the platform, say drivers and passengers (a "multistakeholder co-op"). In addition to ownership type, a typology of co-ops in the digital economy also needs to reflect the heterogeneity of platform work. Researchers differentiate between work that is performed on a platform via a web-based interface (i.e., crowdwork), for example, and work that is "platform-facilitated yet place-based and geographically limited," like on-demand tasks such as cleaning services and driving for a rideshare (Johnston and Land-Kazlauskas 2018, 3; Rani et al. 2021, 18).

For the purpose of this review, we thematize innovations bridging work and co-operation in the digital economy primarily by the group of workers involved. We do so because this review is concerned to explore what workers are driving co-op formation in the digital economy and how their co-ops are confronting the problems of work that we inventoried earlier. We find that the co-operatives that receive the most coverage in the reviewed literature tend to be those created by and for: 1) self-employed workers across a range of sectors, particularly the (digital) creative industries; 2) location-based platform workers in the on-demand economy; 3) technologists and communication professionals; and 4) data subjects.

Before we go on to describe each of these streams of co-operation, a few caveats must be noted. First, individual co-ops can straddle two or more of these four categories. Second, while these four areas of innovation capture the primary foci in the reviewed literature, this schema is not exhaustive. Neglected, for example, are cultural industries platforms, such as music and video

streaming co-ops (e.g., Ampled, Means TV, Resonate), which, despite their low number and the limited research on them to date, represent significant experiments in building "cooperative digital infrastructure" (Pentzien 2020, 21) toward a more democratic cultural economy. Third, this co-operative landscape is uneven. It features a relatively low number of established co-ops alongside a larger group of small, emerging co-ops with uncertain futures. Finally, the landscape of co-operation in the digital age is variegated—in ownership and governance structure, in economic activity, and in the concepts that inspire and guide different co-op projects (see: Figure 1).

Ownership and Governance Structure

- Worker co-op
- Consumer co-op
- Multistakeholder co-op
- Co-operative federation
- Employment co-op
- Freelancer co-op
- Producer co-op

Work/ Economic Activity

- Technology services
  e.g., software development
- Media and cultural work
  e.g., design, journalism, photography
- App-based platform labour
  e.g., crowdwork
- Shared services
  e.g., business support, coworking
- Data
  e.g., health, mobility
- Platform development and maintenance
  e.g., streaming, online marketplace
- On-demand, in-person service work
  e.g., cleaning, care, ridesharing, delivery

Conceptual Reference Points

- Workplace democracy
- Open cooperativism
- Platform cooperativism
- Distributed Co-operative Organization (DisCO)
- Exit to Community (E2C)
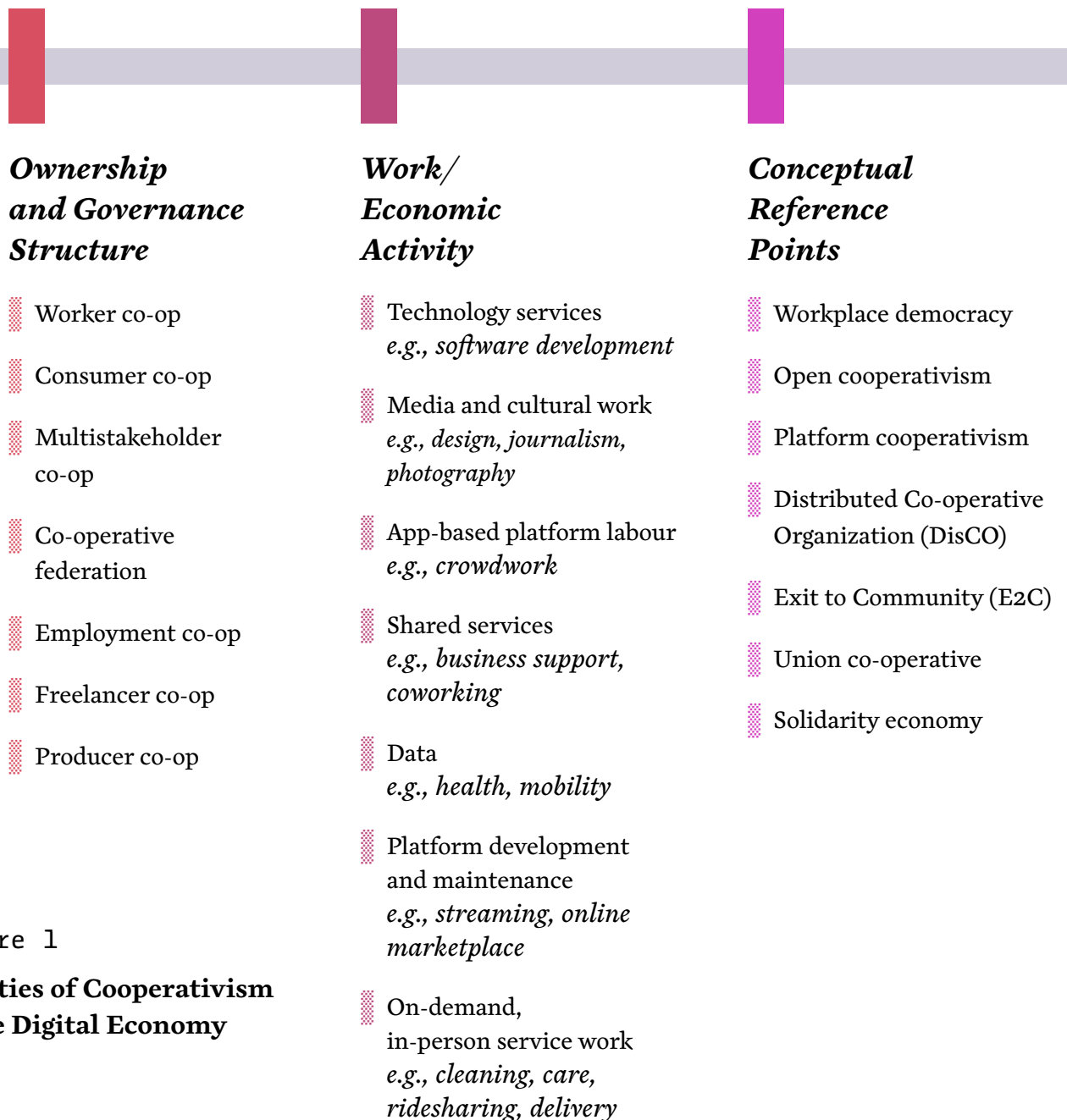- Union co-operative
- Solidarity economy

Figure 1

Varieties of Cooperativism in the Digital Economy

Shared-services co-ops of self-employed workers

In the first area of co-operative innovation, the co-op model is used as a "tool to organize and support" workers in nonstandard employment (Eum 2019, 22). These co-ops go by different names, including "freelancer co-operatives" (Jang 2017), "cooperatives of independent workers" (Puusa and Hokkila 2020), "self-organising" initiatives (Dellot and Wallace-Stephens 2017), "employment co-operatives" (Boudes 2020), and "shared service co-operatives" (Eum 2019, 16). While they take different forms, these co-ops respond to needs arising from the specific conditions of self-employed work. They serve a range of workers, including those in digital creative industries, such as artists, web designers, IT consultants, photographers, and writers. Shared-services co-ops of self-employed workers, as we broadly refer to them, mitigate challenges that stem from workers' legal status as self-employed, the self-managed nature of their careers, and the project-based organization of their work. Shared-services co-ops support freelancers and other self-employed workers in two primary ways: first, they provide mutualized business services, both online and offline; and second, they extend social protections to members by giving them access to legal employee status (or a proxy status).

In worker co-ops, worker-owners engage in joint production (Terrasi 2018, 18). In contrast, members of shared-services co-ops of self-employed workers typically perform their work independently. These co-ops provide their dispersed members with a degree of security amid flexibility (Boudes 2020, 217), leveraging the co-op model to enable workers outside of an employment relationship to gain access to social protections, like unemployment insurance, from which they would otherwise be excluded. In this way, these co-ops address a widely acknowledged problem of contemporary labour in jurisdictions where the standard employment relationship remains the gateway to many of the social rights and entitlements associated with the modern welfare state. The literature includes several interview-based case studies of co-ops that cater to self-employed workers in digital creative industries and beyond. While each case is shaped by the national context from which it emerges, together they speak to common needs among self-employed workers and provide broadly similar member benefits. Much of the research in this area focuses on two cases, Smart and the BEC, both of which aim to protect self-employed workers' independence while enhancing the support and security available to them, ultimately placing nonstandard workers on a more even footing with their counterparts in standard employment.

Founded in Belgium in 1998, Smart (Société Mutuelle pour Artistes) is a multistakeholder co-op that has grown to more than 100,000 members across nine

European countries (Bird et al. 2020, 19; Rani et al. 2021, 248). Initially, Smart's members were artists and cultural workers. Later, it welcomed nonstandard workers from a wide range of occupations, many of whom are in creative industries. More recently, Smart expanded its efforts to support platform workers upon learning that a substantial share of its creative-worker membership had been supplementing their income via food delivery apps (Bellini and Lucciarini 2019). Researchers tend to highlight two features of the Smart model. First, the co-op's freelance members are, in legal terms, recognized as employees of Smart for the duration of a contract that a member chooses to process through the co-op. As a result, Smart enables its member-employees to access state-based social protections, like unemployment insurance and pension contributions, which would otherwise be out of reach on account of these workers' nonstandard employment status. When members enter an employment contract with Smart, the co-op pays employment taxes and collects payment from clients on members' behalf. Smart members are not technically self-employed then; they are what Murgia and de Heusch (2020) refer to as "salaried autonomous workers" (215). Second, Smart provides mutualized services to support members' project-based careers, including accounting, insurance, invoice factoring, legal advice, marketing, and coworking. As Smart handles many administrative tasks, members have more time to devote to their core work. To fund its services, Smart charges a 6.5–9% levy on each invoice that a member processes through the co-op (Murgia and de Heusch 2020, 216). Smart is a kind of platform co-op in that the digitalization and automation of its contract tool and service provision have been instrumental to Smart's membership growth and internationalization.

Similar in many respects to Smart, another co-operative framework that supports self-employed workers is the French Business and Employment Co-operative (BEC). Dating to the mid-1990s when France promoted entrepreneurship as a response to high unemployment, BECs extend mentorship, training, and business support to new solo entrepreneurs (Boudes 2020). Like Smart, BECs can serve as their members' legal employer, allowing members to access social protections that are unavailable to nonstandard workers. While there are 74 BECs in France (Conaty, Bird, and Ross 2018, 37–38), the Paris-based BEC Coopaname is addressed in several contributions to the literature (Boudes 2020; Bureau and Corsani 2017; Dellot and Wallace-Stephens 2017, 21). Researchers find that while Coopaname does not fully resolve the problem of precarity for its self-employed members, the co-op has helped to protect independent workers' autonomy and reduce members' risk through collective practices of mutualization (Bureau and Corsani 2017, 66–67).

The literature identifies other national variations of shared-services co-ops for self-employed workers. Scholars have researched, for example, the Finnish "co-operatives of independent workers" model, a type of co-op that has become increasingly attractive to media and arts workers for enabling freelancer-members to access unemployment benefits during periods when they are without paid work (Puusa and Hokkila 2020). In South Korea, Jang (2017) documents "freelancer co-operatives," which have proliferated rapidly in the last decade or so. In a case study of an IT co-operative, Jang found that members join freelancer co-ops to access work, improve pay, and smooth out the feast-or-famine flow of work. Jang also found, however, that a freelancer co-op's ability to satisfy members' needs strongly depends on whether it has the resources to hire a specialized coordinator to help members access contracts and whether the co-op members' skills are complementary. Finally, this subset of the literature addresses co-operatively run coworking spaces, where coworking is part of a broader offering of services to self-employed members (de Peuter 2017; Gandini and Cossu 2021). An example is the UK's IndyCube, a network of coworking spaces that partnered with Community, a professional workers' union, to offer self-employed members access to discounted services, from legal advice to invoice factoring (Conaty, Bird, and Ross 2018, 41–42; Dellot and Wallace-Stephens 2017, 26; de Peuter 2017, 14).

In summary, a new generation of shared-services co-operatives for self-employed workers is emerging. They serve a cross-section of nonstandard workers in digital creative industries and utilize digital infrastructure to provide tailored services to dispersed members. Researchers frame these co-ops as a response to the flexibilization and precarization of labour. The literature does not conclude that these co-ops entirely resolve self-employed workers' precarity. It does illustrate, however, that these co-ops meaningfully address freelancers' needs and desires, particularly by helping to preserve their autonomy and flexibility in work by extending rights and providing supports that put independent workers' careers and livelihoods on a more stable foundation. In shared-services co-ops for self-employed workers, the common bond between members is employment status. In other such co-ops, however, an additional bond is a shared profession or sector. Here we note that several researchers see potential in the co-operative form to mitigate labour precarity in creative industries, and, in particular, to dislodge the "dominance of the competitive, entrepreneurial model" (Boyle and Oakley 2018, 2, 8; see also: Conaty, Bird, and Ross 2018, 6; Grayer 2020, 2; Jang 2017; Sandoval 2017).

One co-op that is held up by platform co-op researchers as an exemplar of the possibilities of bringing together digital platforms, the co-op model, and freelance cultural workers is Stocksy United, the subject of two extended case

studies (Grayer 2020; Schor and Eddy 2020). This Victoria, BC-based boutique stock photography and video co-op is a "producer co-op"—an online market-place for the sale of professional-grade digital photography and video—with a multistakeholder ownership and governance structure (Grayer 2020, 10, 61). Stocksy, whose members come from 65 countries, shows how isolated cultur-al workers can be aggregated through a co-operatively owned digital platform (Schor and Eddy 2020, 26). Founded in 2012, Stocksy has approximately 1,000 artist-members and generates more than $10 million in revenue annually (Coca 2017). As Grayer (2020), Schor (2020), and Schor and Eddy (2020) ac-knowledge, Stocksy is an "ideal case" for a platform co-op (Grayer 2020, 10) due in part to its favourable conditions of emergence: its founders had previ-ously sold a successful stock photography business to a major industry player, Getty Images; were able to provide a $1.3 million loan to seed Stocksy and recruit staff; and had deep business and technical understanding of the stock photo industry (Schor and Eddy 2020, 25–26).

The Stocksy case echoes what Sandoval (2017) found in research on UK-based worker co-ops in the cultural sector, notably that "dissatisfaction with working conditions in the cultural sector, and the desire to create alternatives" (121), motivates cultural workers to explore the co-op model. Researchers suggest that Stocksy measures up to its founders' goals of raising digital stock photogra-phers' rates as well as their voice. According to Schor and Eddy (2020), Stocksy "(a)rtists receive 50% of one-time sales, in comparison to the 15% industry standard, and 75% for extended licenses (versus 45%)" (25–26). Yet, even with Stocksy a small number of artist-members receive the lion's share of royalties (27), and so it does not escape the "winner-take-all-market" dynamic common to the cultural labour economy. Still, Grayer (2020) and Schor and Eddy (2020) found a high level of satisfaction among Stocksy's photographers. Partly, this is because the co-op structure affords freelance photographers a say in their work conditions. Like many co-ops, Stocksy's members decided to limit the co-op's membership size, which counteracts downward competitive pressure on rates and helps Stocksy provide superior compensation (see: Grayer 2020, 54; Schor and Eddy 2020, 26). The control that members have within the co-op model also makes this platform less volatile than its corporate counterparts, which could be sold to a new owner at a moment's notice (Grayer 2020, 57). In terms of governance, Stocksy has three classes of member—founders, artists, staff; a board with representatives from each of these member-classes; and "a trans-parent, flat decision-making process, with members participating through an online (forum)" (Papadimitropoulos 2021, 254). For Grayer (2020), Stocksy demonstrates that under the right conditions it is possible for a "co-operative committed to equality and fairness (to) protect against some of the pitfalls of precarious work, including isolation, low pay, and unstable earnings" (85).

Location-based labour platform co-ops

Researchers see promise in "co-operatively managed platforms" to counter the lack of voice and other problems that workers face on digital labour platforms where microtasks are distributed and completed, like Amazon Mechanical Turk and Upwork (Graham, Hjorth, and Lehdonvirta 2017, 158). But there is no evidence in the reviewed literature of a digital labour platform of this kind that currently operates as a co-operative. Where the co-op model is being experimented with, however, is in location-based platform work, where platforms connect workers and clients and facilitate the provision of place-bound services. The literature identifies new and emerging location-based platform co-ops in services such as ridesharing, personal care, and cleaning. This turn to co-ops in the gig economy is shaped in part by the legal environment, with platform co-op founders interviewed by Pentzien (2020) suggesting that "labor law in the U.S. has been 'hollowed-out' so substantially in recent decades that cooperativism, for many workers, has virtually come to constitute one of the only ways in which they can protect the value of their labour...in the context of the platform economy" (23; see also: Ji 2020, 12).

The literature includes a small but increasing number of case studies of individual platform co-ops (Conaty, Bird, and Ross 2018; Grayer 2020; Ji 2020; Mannan 2020; McCann and Yazici 2018; Schor and Eddy 2020; Spitzberg 2021). Many of these cases are ridesharing businesses structured as worker co-ops or multistakeholder co-ops. An early entrant, South Korea's Alternate Drivers' Co-operative, formed in 2012 (Ji 2020). While it "is not a platform co-op in a strict sense," in that it has not produced a matchmaking app to connect riders and drivers, Ji reports that the Alternate Drivers' Co-op has "meaningfully improved working conditions" by negotiating with the dominant alternate driver platform to lower the fee drivers must pay, by raising public awareness of drivers' conditions, and by successfully lobbying for rest centres for platform workers (16–18). Studies of worker-owned rideshare platforms that have set out to develop their own technology are also included in the literature. McCann and Yazici (2018) reflect on the experience of Yamuv, a rideshare co-op upstart from West Yorkshire, UK. According to McCann and Yazici, "with workers (and users) in charge of the platform, the employment and human rights of those who participate will be protected" (13). Nonetheless, this study of Yamuv is unique in its emphasis on the difficulties encountered by a fledgling platform co-op, including technology costs, recruitment, and user uptake when competing against incumbent platforms (20).

The literature also examines the Quebec-based rideshare co-op Eva (Mannan 2020; Rani et al. 2021). As Mannan (2020) explains in a detailed case study, Eva

is a "solidarity co-op" whose members include both drivers and passengers. It emerged in 2017 amid debate in Quebec about regulating the ridesharing sector. By 2019, Eva was operating in Montreal, Gatineau, and Quebec City, and had some 500 driver-members. Eva swiftly became "Uber's main rival in Quebec" (26). Eva, preliminary research suggests, has lived up to its hope of providing greater "financial benefit" as well as extending "greater say" to drivers and passengers relative to that provided by incumbent companies (26–27). A lower transaction fee means drivers earn 10–15% more than they would on corporate platforms, while passengers save about 5% (Rani et al. 2021, 88; Mannan 2020, 31). In terms of opportunities for member input, Mannan (2020) sees "a yawning gap between how Eva respects its driver-user members as...compared to other ride-hailing companies" (26–27). Interested in national and international expansion, Eva has been exploring a "social franchise system" (39) as a strategy to scale up by mutualizing the costs and benefits of the co-op's technological infrastructure, a topic to which we will return.

In addition to case studies of individual platform co-operatives, the reviewed literature includes examples of co-op advocacy in the context of public debates and government consultations on strategies for improving platform work. For example, CECOP, a European co-operative federation, submitted recommendations to the European Commission arguing for "the important role that cooperatives are playing and could further play in the platform economy" (CECOP 2021, 2). Interventions centring workers in the Global South also position "worker-owned platform businesses" as a pillar of a pro-worker agenda in the platform economy (Gurumurthy and Chami 2020). And in California, union-supported co-op proponents contend that "worker cooperatives could be the optimal solution to the ongoing turmoil within the gig economy" (Herrera et al. 2020, 17)—a proposed Cooperative Economy Act in California would allow for the creation of "intermediaries between workers and gig companies that are jointly owned by the workers" (17). In this model, a Cooperative Labour Contractor (CLC), in partnership with a union, would negotiate contracts with platform companies and assume "responsibility for payment of wages, health and safety expenses, payroll taxes, UI, and workers compensation" (27). But there is some disagreement in the literature around whether it is the purpose of a co-op to serve as an intermediary that helps to facilitate dominant corporate actors in the gig economy (CECOP 2021, 5). As one platform worker replied when asked for their perspective on the CLC model: "Why not just have the workers own the actual platform?" (cited in Herrera et al. 2020, 21).

Another cluster of worker-owned, location-based platforms centre on care work, though these co-ops receive less sustained attention in the literature as compared to mobility co-ops. There are several examples of care worker co-

ops that harness platform technology. Conaty, Bird, and Ross (2016) see "the power of co-operative platform economics" (69) exemplified in Buurtzorg, a 9,000-member care-provider in the Netherlands. Started in 2007, the Buurt-zorg platform facilitates a network of self-managed, neighbourhood-focused carer teams. The most detailed account of a platform co-op in the care sector is Ji's (2020) study of South Korea's Life Magic Care Cooperative (20–22). Launched in 2018 with the support of a "social cooperative incubator," Life Magic operates an app for cleaners and charges lower fees than conventional "cleaning platform companies," taking a 10% cut as opposed to siphoning up to 25%. While Life Magic has grown to nearly 1,700 members, competition from incumbent platforms makes it challenging for the co-op's members to secure full-time work through Life Magic alone (22–23).

Two US-based care-worker co-ops that have developed a digital platform to organize their members' work are discussed in the literature. Based in New York City, Up & Go is a platform co-operatively owned by "majority immigrant woman of color-owned cleaning cooperatives" (Spicer 2020, 336). The platform's development was supported by the Centre for Family Life in Brooklyn (336) and received grants from sources such as the Robin Hood Foundation (Coca 2017). Up & Go's members receive a fairer share of the economic value generated by their labour: member co-ops retain 95% of the cleaning fee—a share superior to that provided by rival extractive platforms (Coca 2017)—and the remaining 5% of the fee is cycled back to the second-tier co-op (or federated co-op) to maintain the platform (Borkin 2019, 19). Cleaners had a voice in the design of the platform. They decided, for example, not to allow clients to rate individual cleaners, a platform design decision that has been made by several location-based labour platform co-ops, which could be read as a response to the racism and discrimination that can be enabled by customer rating systems in the platform economy (see: Ji 2020, 22; Mannan 2020, 30; Schor and Eddy 2020, 15). Says one worker-owner, Up & Go is "a backbone that supports us and protects us" (Cruz, cited in Coca 2017). Up & Go is currently co-owned by a handful of cleaning co-ops, and there are plans to use the co-op franchise model to expand the platform's reach (Spicer 2020, 336).

A second US-based care-work platform co-op, California's NursesCan, was formed by and for licensed vocational nurses who provide in-home care to patients (Bird et al. 2020, 20; Coca 2017; Criscitiello 2016; Schneider 2018, 325). Built by a tech startup, the NursesCan app is used by worker-owners to access and schedule work with hospitals and clinics (Conaty, Bird, and Ross 2018, 74–75; Criscitiello 2016, 146). The co-op responds to nurses' need for "new tools to find clients and secure livelihoods" and to "create an on-demand technology that values workers" (145). Notably, NursesCan is a union-supported co-op,

with the 150,000-member United Health Workers West union facilitating relationships with employers and providing legal support to get this co-op off the ground (Coca 2017). Purchasing a $500 membership share to join the co-op, each nurse-member shares ownership and profits, increases their control over their labour, has a say in the design of the technology that organizes their work, and is covered by a collective bargaining agreement (Conaty, Bird, and Ross 2018, 74–75; Criscitiello 2016, 146–147). Criscitiello (2016), a union organizer actively involved in the NursesCan project, writes: "The worker cooperative is building the type of labor market that its members want to see" (146).

Worker co-ops in technology and communication services

Worker-owned co-ops in digital creative industries, particularly in technology services and digital communication, represent a third area of co-operative activity in the digital economy. The reviewed literature assesses worker co-ops, in part, as a strategy to "confront precariousness" in creative industries (Sandoval 2016, 56). In this regard, worker co-ops have some of the same goals as shared-services co-ops for self-employed workers. Researchers note important differences between these two models, however. While shared-services co-ops leverage mutualism to support individual members in their independent careers, member-owners in worker co-ops typically engage in common projects, working jointly in the production of a good or service (Terrasi 2018, 18). Worker co-ops and freelancer co-ops also have different contractual relationships with their members. As Jang (2017) explains: "Freelance cooperatives make service contracts with their members whereas worker cooperatives make employment contracts with their members" (84). Minimally, worker co-ops reduce their members' precarity insofar as they have access to social protections through their legal status as employees.

The literature broadly associates worker-owned and worker-controlled enterprises with a variety of pro-worker commitments, including to "quality employment" (CECOP 2021, 4), to respect for workers' dignity and to humanized work (CICOPA, cited in Eum 2019, 22), to worker empowerment through "worker voice" (Johnston and Land-Kazlauskas 2018, 19), specifically members' "democratic control over their workplace" (Evans 2020, 4) and "work practices" (Chatterton and Pusey 2019, 39), and to the distribution of surpluses "proportionate to each worker's contribution" (Dellot and Wallace-Stephens 2017, 14). Because of their commitment in principle to sustainable, meaningful, and fair employment, worker co-operatives appear in recent discussions of strategies for combatting precarious employment in creative industries (Boyle and Oakley 2018, 2; de Peuter et al. 2020; Linares and Woolard 2021, 66; Sandoval 2016). In general, however, "little attention has been paid to the co-operative,

as opposed to the standard entrepreneurial model" in research and policy surrounding the "creative industries" (Boyle and Oakley 2018, 11).

Despite this absence, the literature reveals a small but growing subset of tech co-ops, defined by Metts (2016) as "worker-owned development shops that build customized [technology] tools" (204). While there is no single, comprehensive list of tech co-ops, online directories like the Tech Co-ops List on GitHub (github.com/hng/tech-coops) provide a preliminary indication of the sector's composition. A broad, if partial, picture comes in a report on a 2017 survey of "youth cooperatives," analyzing responses from 64 co-ops across 31 countries, the majority of which (56%) were worker co-ops (Terrasi 2018, 31–32). These co-ops are "mostly active in the service sectors," from "scientific and technical activities" to "information and communication" (38). In addition to being concentrated in "non-capital-intensive service activities" (42), youth co-ops, according to this study, tend to be "micro enterprises," with "the majority…composed of less than 10 members" (44). Similarly, a UK report (Conaty, Bird, and Ross 2016) notes that 90% of worker co-ops in the design field have fewer than six members (66).

The literature identifies some of the motivations behind worker co-ops in tech and digital creative industries. Authors suggest that workers are drawn to co-operatives in part out of disenchantment with dominant work practices and industry norms, from "startup culture" in tech (Sheffield 2018) to "competitive individualism" in the cultural sector (Sandoval 2017, 121). The research suggests that co-op members are attracted to the possibility of working through the co-op model to transform the culture of work, particularly to advance economic and social justice and workplace solidarity. More broadly, co-operative enterprise is seen by some co-operators as a tool for "getting the fruits of innovation shared more fairly and providing better social responsibility," writes Huyler (2018) in an article exploring a cluster of tech co-ops in the UK. Huyler reports that there is a contingent of tech workers who "want to work for companies that are socially responsible, but don't want to do the repetitive web maintenance on offer at many charities."

The literature suggests that there is a good fit between the co-op model and tech work and creative industries generally. Boyle and Oakley (2018), for example, describe the worker co-op as a model of work organization that could provide "exactly the sort of control that many creatives want but are told is only available to them as 'entrepreneurs'" (2). They also observe parallels between the self-management and collaborative competencies called for in creative industries careers and the skills that are required to run a worker co-op democratically (8). In a similar vein, advocates of digital cooperativism point

out that work practices in mainstream tech workplaces "demonstrate the plausibility of…highly distributed and productive self-management" (Schneider 2018, 322; see also: Sheffield 2018). And as one co-op worker notes, there is currently a strategic opportunity to launch tech co-ops, as, quite simply, "it's much easier to establish co-ops in an industry that is expanding" (Whellons, cited in Sheffield 2018).

Compared to shared-services co-ops for the self-employed and location-based labour platform co-ops, worker co-ops in tech and digital communication are the subjects of relatively few extended studies. There are, however, some case studies in the reviewed literature as well as several brief profiles of individual worker co-ops in software development, website creation, and digital design, including Agaric (Metts 2016), Enspiral (Pazaitis, Kostakis, and Bauwens 2017), Guerilla Media Collective (Troncoso and Utratel 2019; Troncoso et al. 2020), the Korean IT Developers' Cooperative (Jang 2017), Loomio (Jackson and Kuehn 2016), Outlandish (Dellot and Wallace-Stephens 2017; de Peuter et al. 2020; Gandini and Cossu 2021), Sassafras Tech Collective (Dimond and Galusca 2017), and Story 2 Designs (de Peuter et al. 2020).

Any assessment of worker co-ops as an alternative to precarious work in the digital economy requires an empirical picture of working conditions in tech and digital communication co-ops. The portrait of working conditions that emerges from the reviewed literature, however, is somewhat fragmented rather than systematic. Nevertheless, the research offers evidence of a pattern of commitment to worker empowerment, economic fairness, and equity.

One example of worker empowerment sees worker-owners exercise collective control over what clients they take on. In contrast, there is mounting contention in Big Tech companies that compel employees to work on government and corporate contracts despite workers' deep ethical misgivings about them (Schor and Eddy 2020, 23). The tech co-op Outlandish refuses to work with clients involved in arms manufacture and the petrochemical industry, for example (Huyler 2018). More broadly, the worker co-ops introduced in the literature, while not necessarily averse to commercial clients, often work with the public sector as well as nonprofit and community organizations where there is an alignment of values (de Peuter et al. 2020).

Some researchers reject the myth that in co-ops the minutiae of operations are subject to "cumbersome" collective deliberation (Schneider 2018, 332). There is, however, evidence that tech co-ops strive to maintain efficient operations while reducing organizational hierarchy by, for example, rotating "leadership" roles as Enspiral does (Pazaitis, Kostakis, and Bauwens 2017, 11–12) and adopt-

ing practices of sociocracy to encourage consensus-based decision-making as at Outlandish (Dellot and Wallace-Stephens 2017, 23; Huyler 2018). The research also points to the high value that tech co-ops place on regular meetings and workplace assemblies (Anctil 2016; de Peuter et al. 2020, 43), which, when viewed from a wider perspective, suggests how sustaining communities of co-operators has historically relied on "communication that humanizes members to each other" (Benkler 2016, 95).

Regarding economic fairness and equity, some of the co-ops discussed in the literature pay all members the same rate, thus closing race- and gender-based pay gaps (Anctil 2016). Guerilla Media Collective (GMC) has experimented with open-value accounting to make visible and compensate care work, which GMC conceives as encompassing care for the co-op's members as well as for its values and community (Troncoso et al. 2020, 43). Where economic fairness overlaps with the co-operative principle of commitment to community, some co-ops charge sliding-scale rates to clients of different means (Troncoso et al. 2020, 57). In addition, many co-ops direct a portion of their surplus to paying members for pro-bono work with organizations and campaigns that members collectively decide to support (Conaty, Bird, and Ross 2016, 67; Huyler 2018; Pazaitis, Kostakis, and Bauwens 2017, 8; Troncoso and Utratel 2019, 39, 41).

Advocates believe that "worker coops can be a powerful weapon" in the struggle for "inclusivity" in the "world of tech" (Anctil 2016). Terrasi's (2018) study of youth co-ops found, for example, a "stronger presence of women in management roles…" (36). GMC's elevation of care work reflects its commitment to feminist economics (Troncoso et al. 2020, 15–16). Similarly, Dimond and Galusca (2017) describe the tech co-op Sassafras, comprising about 70% women, as an "intersectional feminist workplace" (2–3). Like GMC, Sassafras compensates "emotional labor…at the same rate as client work," rotates tasks such as notetaking and event planning, and fosters "remote work culture…to support those with chronic illness who may not have the ability to come into the office every day" (4).

The reviewed literature does not include a systematic study of a large sample of worker co-operatives in technology services and digital communication from which generalizable claims about working conditions can be made. This gap reflects, in part, the newness of digital creative industries co-ops. Elements of an aggregate portrait are provided, however, in a report on a survey of 106 co-operatives in Canada, the UK, and the US (de Peuter et al. 2020; Dreyer et al. 2020). The surveyed co-ops were not exclusively within "digital" industries: 36% were in technology and communication, while most of the rest of the sample were in the cultural sector (de Peuter et al. 2020, 18). Among the

pertinent findings is that more than 90% of the co-ops reported that they were satisfied with their general working conditions (de Peuter et al. 2020, 32).

On pay, however, the findings are mixed: about 55% of co-ops reported that they met or exceeded average pay rates for their industry, meaning nearly 45% paid below the industry average (de Peuter et al. 2020, 32). In terms of benefits, 79.2% of the surveyed co-ops reported that they paid a "living wage" (or higher) and 39.6% provided health benefits (33). When asked about the advantages of working in a co-op, members' top five most selected benefits were: "supportive work relationships"; "a friendly work environment"; "opportunities for creative self-expression"; "a work culture that encourages teamwork and co-operation"; and "low hierarchy at work" (34). The findings of this study reaffirm the capacity of co-operatives to offer alternatives to individualized work cultures. However, they also show that diversity and inclusion remain major challenges for co-ops in these sectors. The surveyed "co-ops described themselves as most diverse with respect to gender and age, and least diverse with respect to race," with nearly 18% of co-ops describing themselves as "not at all" racially diverse, and 52.6% describing themselves as only "slightly" racially diverse (26).

Data co-ops

As part of a critical response to data extractivism and a positive vision of data justice, cooperators and digital rights advocates have begun to explore how the co-op model could be applied to the data economy. While data co-operatives represent a slight departure from the labour orientation of other types of co-ops considered in this report, they remain relevant to the quest for co-operative strategies to improve livelihoods and deepen democracy within the digital economy by allowing "data subjects"—a person from whom personal data is collected or held by a business or other organization—to exercise greater ownership and control over the data and value they produce. Data co-ops are presented in the literature as a strategy for reclaiming the value produced by platform users, who are increasingly identified as primary producers of value in the data economy.

Some scholars argue that the current data economy constitutes "a new kind of feudalism," where the central resource being controlled is networked data (Bauwens and Kostakis 2016, 163). As an increasing amount of data comes under the exclusive control of a small number of private platform companies, scholars have begun to consider alternative models that challenge the tendencies of platforms toward extraction, enclosure, and monopolization (Blassime et al. 2018; Gurumurthy and Chami 2020; Micheli et al. 2020; Pentland and

Hardjono 2020). Data co-ops are collectively owned entities that allow data subjects to control the extraction, dissemination, and monetization of their personal data (Micheli et al. 2020; Pentland and Hardjono 2020). Micheli et al. (2020) concluded in a review of recent scholarship on alternative data governance models in Europe that data co-operatives are one of the emerging models that "highlight how civil society actors are addressing the power asymmetries in the current data economy" (1).

Blasimme et al. (2018) define data co-operatives, explain why they are valuable, outline their underpinning principles, and propose how governments can incentivize their formation. Data co-ops, they explain, presume "people...are the legitimate controllers of their personal data" (474). Currently, data co-ops are most seen in health care (the co-op Savvy, for example), where data collection and management are essential and require the utmost level of trust. Numerous researchers argue that the co-operative model is well positioned to ensure this trust and incentivize data sharing (Blassime et al., 2018; Pentland and Hardjono 2020). Schneider (2018) argues that "cooperative business models may be especially well suited to building data economies that are both transparent and competitive" (326–327), especially when it comes to highly personal data like medical information. Health data co-ops also have the power to strengthen medical insights by creating more inclusive and representative data repositories through a democratic and accessible platform (Blassime et al. 2018, 476). The MiDATA co-operative, for example, was created in 2015 by ETH Zurich and the Bern University of Applied Sciences, public research universities in Switzerland. MiDATA is a nonprofit, open-source health data co-op that uses "state-of-the-art encryption" to ensure privacy while enabling greater data sharing in pursuit of new medical treatments (Blassime et al. 2018, 475).

In a typical data co-op structure, disparate individuals pool their data from a variety of sources and voluntarily entrust the co-operative with everyday stewardship and management of their data (Borkin 2019; Hall 2021). Data subjects retain control and ownership over their data and can "express their preferences and concretely decide how to share their data and for which purpose" (Micheli et al. 2020, 8). An example of a data co-op with a worker-centred purpose is Driver's Seat, an app that aggregates mobile data from rideshares to generate insights that can be sold to civic agencies and used by drivers to optimize their earnings (Enochs 2019; Hall 2021). Driver's Seat blends practices of data cooperativism with the broader platform co-op movement by drawing on "the interest and perceived injustice among gig-economy workers...to build an important worker-owned and controlled data asset" (Hall 2021, 62). By selling insights to transit agencies and municipal governments, Driver's Seat shows

the potential for political buy-in necessary for wider adoption and uptake of data co-ops (63).

The promise of data co-operatives is "only as strong as the regulatory frameworks that make them possible (Micheli et al. 2020, 12). Data co-ops could take on a legal form similar to a trust (Borkin 2019, 19). Credit unions could also provide an institutional context for data co-operatives (Hall 2021). While some scholars argue that "widespread deployment of data cooperative capabilities could be surprisingly quick and easy" (Pentland and Hardjono 2020), others observe that data co-ops "struggle to scale up and reach a critical mass of users" (Micheli et al. 2020, 10). Financial sustainability and difficulty achieving scale are frequently noted as obstacles for data co-ops (Blasimme et al. 2018; Hall 2021; Micheli et al. 2020; Pentland and Hardjono 2020). Some critics also take issue with the data co-operative approach because they believe that public ownership is a more sufficient and democratic antidote to platform capitalism (Morozov 2016).

Challenges of Co-operation
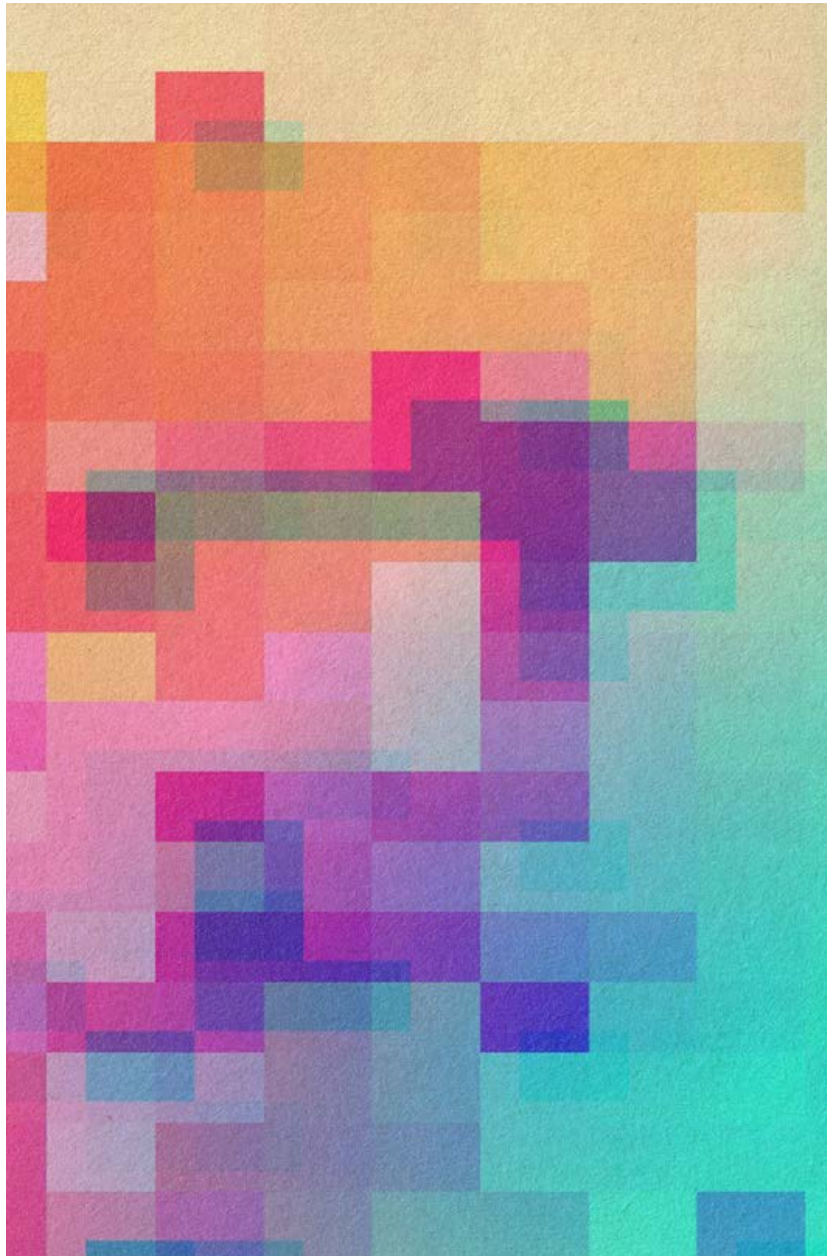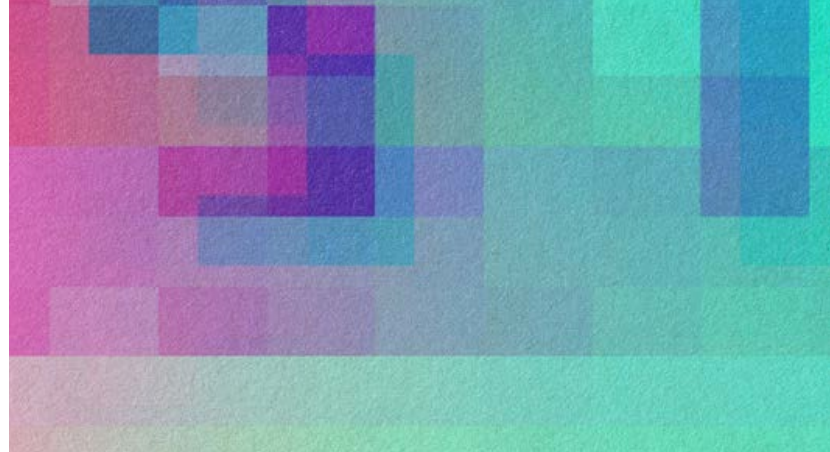
The formation, sustainability, and expansion of worker co-operatives in the digital economy are hindered by several structural barriers. The primary challenges are access to capital, competition and network effects, knowledge of the co-operative model, business development support, and the regulatory environment.

artwork by Goce Ilievski

Despite the potential of co-operatives to counter work-related problems in the digital economy, there are very few platform and tech co-ops relative to their conventional business counterparts. The consensus in the reviewed literature is that co-operatives' limited presence in the digital economy reflects a series of "structural challenges" faced by co-ops generally (McCann and Yazici 2018, 43; see also: Borkin 2019, 24; Innovation, Science and Economic Development 2019, 2–3; Pentzien 2020, 5; Schneider 2018, 337; Schneider 2020a). Factors that inhibit the creation, longevity, and growth of co-operatives are one of the major themes in the research.

Researchers identify challenges associated with specific co-op types. For example, in a case study of a South Korean IT developers' co-op, Jang (2017) found that freelancer co-operatives can struggle to improve members' livelihoods if the co-ops lack the resources to "employ a coordinator specialized in securing projects for freelancers" (85). In an assessment of a rideshare platform co-op project in the UK, McCann and Yazici (2018) highlight the prohibitive expense of developing technological infrastructure on par with that of incumbent platform companies (30–31). In a historical case study of Smart, Xhauflair et al. (2018) found that as this shared-services co-op of self-employed workers grew more popular, its legitimacy was challenged by established labour market actors, namely unions, some of which initially perceived Smart as reinforcing precarious employment (383). And in a commentary on data co-ops, Hall (2021) speculates that these co-ops could face high data storage and security costs, which would be difficult for them to sustain without a reliable income stream—and the existence of a market for the data pooled by such co-ops is far from assured.

On balance, however, the challenges that receive the most attention in the literature are those posed by the wider economic, political, and cultural environment in which co-operatives operate. While they may have unique manifestations in the specific industries explored in this review, the challenges identified in the literature are present throughout the co-operative sector. The most frequently discussed challenge areas are: 1) access to capital; 2) competition and network effects; 3) knowledge of the co-operative model; 4) business development support; and 5) the regulatory environment.

Access to capital

Access to capital is the most remarked upon obstacle in the literature (Borkin 2019, 26; Brodsky and Mason 2021; Evans 2020; Huyler 2018; Mannan 2020, 27; Mayo 2019, 4–5; Muldoon 2020, 79; Pentzien 2020, 41; Schor and Eddy 2020, 22; Terrasi 2018, 50; Theodos, Edmonds, and Scally 2020, 6; van Doorn 2017b). Insufficient financing is widely regarded as the most significant factor preventing co-operatives from flourishing in the digital economy. While researchers describe "lack of funding" as a "chronic impediment" to co-operative development historically (Schor 2020), the "capital conundrum" (Borkin 2019) is particularly challenging when capital-intensive technology is involved.

Authors identify several sources from which co-ops have tried to raise capital. "Traditional banks," according to Evans (2020), "have largely ignored or avoided lending to co-ops," owing partly to "misperceptions" that co-ops pose a higher "credit risk than companies" (15; see also: Terrasi 2018, 50). Credit unions are characterized as a co-op friendly lender, yet these member-owned financial institutions may have limited familiarity with the tech industry (Schneider, cited in Coca 2017). Beyond bank or credit union loans, co-ops often raise early-stage financing by pooling monetary contributions from individual co-op members (de Peuter et al. 2020, 22–23; Terrasi 2018, 50) and crowdfunding (Evans 2020). Normally, these funding sources involve a small pool of contributors and, as such, are likely to yield a limited amount of capital (Evans 2020, 12). In some jurisdictions, co-ops may be eligible for public funding, though platform co-op founders in France and Germany have reported frustration in their attempts to apply to public loan programs (Pentzien 2020, 41, 52).

Several contributions address the fraught relationship of co-operatives to the venture capital system that has come to dominate the financial structure of the startup economy. It is to venture capital that tech companies typically look for support for both early-stage development and efforts to scale operations (Alleyne et al. 2020, 17; Borkin 2019, 26; Coca 2017; Criscitiello 2016, 146–148; Dickey 2020; Evans 2020, 19; Pentzien 2020, 23; Schneider 2018, 330). Authors identify the tensions between co-operative principles and the strings typically attached to equity investments from venture capitalists. Discussing the NursesCan platform co-op, Criscitiello (2016) reflects on early conversations between worker-owners and prospective investors: "Democratic, one-worker-one-vote principles feel, at a gut level, at odds with the capital that the platform needs to grow" (147–148). A common position in the literature is that granting outsized decision-making power to external equity investors in return for their upfront money and risk-taking threatens to undermine co-operative principles, including democratic member control, generally understood

to mean one member, one vote, regardless of the amount of capital contributed.

Contributors to the literature consistently express concern that surrendering control to external equity investors runs the risk of compromising co-operative principles, and, as a result, venture capital is viewed as a source of funding that is largely inaccessible to co-ops in its prevailing form. Some platform co-ops have, however, accommodated different membership "classes," including an investor class, though the availability and configuration of these arrangements will depend on jurisdiction-specific co-op law. External investors' inclusion in the membership can, in any event, be contentious where "equity" is coupled with "voting rights" (Pentzien 2020, 23). Without the ability to raise sufficient capital, co-operatives in the digital economy will, according to Zygmuntowski (2018), remain disadvantaged in the marketplace, poorly equipped to confront Big Tech players who are generously resourced to "buy the latest technology to always remain competitive" (187).

In addition to their governance framework, co-operatives do not align with most venture capitalists' expectations of incentive structures. From the point of view of venture capital, democratic ownership can be an "insurmountable hurdle" (Coca 2017), because, with a co-op, the intent is for ownership to remain in the hands of members, whereas "(f)or venture capitalists, there's no incentive to invest in businesses that will not eventually be sold to other investors for a return" (Coca 2017; see also: Evans 2020, 5; Muldoon 2020, 79; Schneider 2018, 330). Co-ops are less appealing to venture capitalists, moreover, because these organizations are motivated by priorities beyond profit, such as delivering long-term value to members by meeting a community-defined need, including, in the context of worker co-ops, the need for sustainable livelihoods (McCann and Yazici 2018, 11).

Competition and network effects

Entwined with the "capital conundrum" (Borkin 2019) is competition, the second key challenge. A crucial facet of this challenge is the network effects enjoyed by incumbent platforms whose value derives from a high level of buy-in on both sides of a platform's market, whether it be passengers and riders, music listeners and musicians or record labels, or workers and clients (McCann and Yazici 2018, 36; see also: Nicoli and Paltrinieri 2019, 816). As we already mentioned, platform cooperativism's proponents have suggested creating co-op clones of dominant corporate platforms (Scholz 2016a, 14; Zygmuntowski 2018, 181). Skeptics contend, however, that co-operative counterparts to the prevailing platform companies will face an uphill battle because of "the mo-

nopolistic nature of platforms, the dominance of network effects and the vast resources behind these companies. [...] A platform like Facebook would...have the weight of its existing data, network effects, and financial resources to fight off any coop rival" (Srnicek, cited in Sandoval 2020, 808).

In their study of upstart worker-owned ridesharing app Yamuv, McCann and Yazici (2018) document the challenges involved in competing against an incumbent platform. They point out a double bind: drivers are reluctant to join a new platform co-op until there is sufficient passenger interest, while passengers are unlikely to find the service sufficiently useful, and hence worth joining, until the platform reaches a certain threshold of drivers. New platform co-op entrants confront the challenge of steadily attracting a balanced supply of users/clients and workers (McCann and Yacizi 2018, 17; see also: Gurumurthy and Chami 2020; Ji 2020, 22–23; Spitzberg 2021). Marketing challenges are significant, too. As with any business, McCann and Yazici (2018) remark, "whether a platform co-operative lives or dies is based on how well they engage and retain customers" (35). Here, a key dimension of competition between co-ops and incumbents is the quality of technology, including app and interface design. As McCann and Yazici (2018) note, "users are often very content with the existing platforms. Users therefore have little patience for platforms that do not replicate the service level of existing platforms" (37). Co-ops, Dellot and Wallace-Stephens (2017) add, sometimes struggle to provide high-quality "front-end user experience" (37), contending that "the issue of UX design has not been a priority for co-ops" (36). Ultimately, these various challenges add up to a larger, conventional challenge for platform co-ops, that of articulating their "value proposition" to "consumers who will have to be convinced to leave their corporate service behind and adopt a new platform" (van Doorn 2017b).

Co-ops that uphold fair labour standards can also be at a competitive disadvantage in the gig economy when their competitors' business models are predicated on undercutting those standards (CECOP 2021, 4). A conventional platform company may lower operating costs by maintaining low labour standards, by misclassifying employees as independent contractors, and by poorly enforcing labour regulations—with the cost savings at least partially passed on to customers. These strategies make for an uneven playing field, penalizing co-ops devoted to improving labour standards. According to the platform co-op founders interviewed by Pentzien (2020): "If labor law was adapted to the context of the platform economy and enforced properly...platform coops... would actually be able to economically compete with and maybe even provide a better alternative to the incumbent platforms" (25).

Knowledge of the co-operative model

Lack of widespread knowledge about the co-operative model is the third challenge facing co-ops (Innovation, Science and Economic Development 2019, 4; Moxom et al. 2021, 57; Muldoon 2020, 81). Lawrence, Pendleton, and Mahmoud (2019) observe an "absence of a broad common knowledge of what cooperatives are, how they operate, and their advantages" (28). Several researchers note the neglect of the co-op model in higher education, particularly in business administration and creative industries programs (Boyle and Oakley 2018, 10; Evans 2020, 15; Moxom et al. 2021, 27; Scholz, O'Brien, and Spicer 2021; Terrasi 2018, 20). The co-operative model lacks visibility, moreover, within a key site of new business formation in the tech industry, incubators, which is one indicator of the marginal status of "the cooperative enterprise model in the tech startup system" (Borkin 2019, 37). In short, the literature identifies a societal knowledge deficit around the co-op option, a deficit that is reproduced within and beyond formal education settings, reducing the likelihood that the co-op model will be on the table when new businesses are formed.

Business development support

Lack of awareness is intertwined with, and compounded by, a fourth challenge, business development support. In the Canadian context, elements of this challenge are documented in a report on consultations with stakeholders from the country's co-op sector, which was published by Innovation, Science and Economic Development (ISED) Canada (2019). Stakeholders expressed a variety of concerns regarding publicly funded business development support, including: "that there is no clear single window within the federal government for co-operatives" (5); "that the communications material surrounding federal support for entrepreneurship provides minimal information on the co-operative business option" (4); and "that front-line federal business development officers have limited knowledge of the co-operative business sector and are generally not equipped to provide technical assistance" (4). Based on the responses summarized in the ISED report, stakeholders' aggregate assessment is that current and prospective co-operators in Canada receive diminished support from federal business assistance programs and services as compared to what is available to founders of traditional businesses. In addition to the challenges associated with a lack of understanding of the co-operative model among frontline government business advisors, stakeholders reported that co-ops can find themselves ineligible for federal funding. For example, entrepreneurial support program Futurepreneur Canada "requires eligible applicants to have a minimum of 51% controlling ownership of their business, which excludes co-operatives" (4). In this case, co-ops' democratic commitments to shared

ownership and collective governance puts publicly funded business support out of their reach.

Beyond the ISED report, several contributions to the literature argue that one of the obstacles to co-operative development is a lack of readily accessible information about how to incorporate as a co-op as compared to traditional forms of business incorporation. For Evans (2020), the co-op information gap—as well as co-ops' difficulties accessing capital—are symptoms of a deeper problem: the traditional corporations' "near-total domination of the public and professional imagination of how business ought to be structured if they are to be viable" (22). The literature provides revealing anecdotes of the marginalization of the co-operative option for individuals who are setting up new businesses. One US-based person, who belatedly learned about the co-op model, stated: "When I started my business, I went online. I went to Google and said, you know, 'how do you start a business,' and it said, 'first you register as an LLC,' and so I registered as an LLC, and I never knew that incorporating as a co-operative...was even an option" (Mason, cited in Brodsky and Mason 2021). In the culture of business formation, sole proprietorship is the default model. Even when a curious potential co-operator sets out to learn more about incorporating as a co-op, the information gap, or sheer diversity of sources, can be frustrating. As an informant in one study explains: "I found myself watching YouTube videos with 4 views [...] I feel like I'm at the bottom of the Internet [...] (I)t's difficult to figure out where to go" (cited in Pentzien 2020, 22).

The literature further reveals the difficulties that existing co-ops have accessing co-op-specific technical assistance, from legal advice to support with writing business plans. Tellingly, for example, a survey of 106 co-ops in the tech and cultural sectors found that a majority, 54.7%, did not have a business plan (de Peuter et al. 2020, 35). In a similar vein, McCann and Yazici (2018) remark: "Creating business plans can be particularly challenging for platform co-ops without a deep understanding and knowledge of the structures and growth plans adopted by cooperatives, and how those interact with the needs and dynamics of platforms" (32). While there is evidence in the literature that co-operatives make use of and value the business development support that is available through regional co-operative associations (de Peuter et al. 2020, 23), the general picture is one of co-ops struggling with a lack of tailored business development support.

Regulatory environment

The fifth challenge area identified in the literature is the regulatory setting in which co-ops operate. In a comparative analysis of government policies that

enable or constrain platform co-operatives in France, Germany, and the US, Pentzien (2020) argues that "the (in)ability of certain organizational forms to thrive strongly relates to the features of the larger political and institutional contexts that these organizations are embedded in" (5–6). The law can actively discourage co-op formation, for example. Referring to the legislative and policy environment for platform co-ops in the UK, Muldoon (2020) states: "Currently, the entire legal and regulatory framework is designed for companies, often providing disincentives for individuals to form co-operatives due to the extra layer of rules and regulations not faced by private companies" (80). Similarly, in a multi-country study of youth co-ops, Terrasi (2018) found that the second-greatest reported barrier to forming a co-op was "regulatory complexity" (47). In some countries, such as the US, this complexity derives in part from the absence of "comprehensive national cooperative policy" (Pentzien 2020, 5). Beyond the fundamental issue of whether a co-operative statute exists (in Canada, each province has a Co-operative Act), seemingly minor legal requirements can be a deterrent to co-op formation. For example, referring to the experience of platform co-ops in Germany, Pentzien (2020) notes that co-ops there are required to pay for a costly annual audit (34), and that members must apply to join co-ops via mail rather than simply online (37).

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Trouble accessing capital, competitive disadvantage on an uneven playing field, lack of knowledge of the co-operative model, insufficient co-op-oriented business support services, and a regulatory framework that can place additional burdens on co-ops—these are among the challenges that can constrain co-operative development. So commonplace are the challenges to co-operation that those touched upon above come up even in accounts of commercially successful platform co-ops, with researchers flagging their exceptional conditions of possibility (Grayer 2020, 82–83; Schor 2020).

Co-operative Infrastructure

Making improvements to co-operative infrastructure is necessary to support and expand worker co-operatives' presence in the digital economy. In an effort to increase the likelihood that co-ops will emerge and realize their potential, researchers and practitioners have identified five key elements of a co-op-friendly ecosystem: enabling legislation and policy; alternative financing models; technical assistance for co-operative business development, including co-op-oriented tech incubators; co-operation among co-operatives, particularly via the formation of federations for sharing technology; and increased awareness of co-op models at strategic sites of learning and new business formation.

artwork by Wizemark

Remaking work in the digital economy co-operatively is a social and political challenge more than a technological one. There is agreement in the reviewed literature that for co-ops to overcome the barriers they face, to spread their beneficial social outcomes more widely, and to thrive within a system that is at odds with co-operative principles requires more supportive conditions, or enhanced co-operative infrastructure.

Co-operative infrastructure designates an ensemble of institutional, governmental, legal, educational, organizational, and cultural practices that mutually support co-ops to start, survive, and scale (Lawrence, Pendleton, and Mahmoud 2019, 33; McCann and Yazici 2018, 4). Co-operative infrastructure is sometimes alternately referred to in the literature as a co-operative "ecosystem," a term borrowed from the lexicon of Silicon Valley and startup culture (Bigot-Verdier 2018; Pentzien 2020, 72; Scholz 2016a, 21–26; Scholz and Schneider 2016, 12; van Doorn 2017b).

Regardless of the term deployed, the underlying assumption in the literature is that platform co-ops and tech co-ops, as well as the transformative social aspirations that frequently drive such projects, will not sustain themselves or proliferate by virtue of technical ingenuity alone. As Gorenflo (2015) stated shortly after the platform cooperativism idea had been floated: "It'll take an ecosystem to raise this movement." Since 2015, this argument has become a mainstay of the literature on digital co-operative economies. For example, writing in 2020, Muldoon predicted: "Platform co-operatives will only thrive in a well-developed ecosystem of supporting institutions and infrastructure that enables co-operatives to grow" (84).

In the Canadian context, Innovation, Science and Economic Development (2019) has acknowledged the need for better co-operative infrastructure. Based on consultations with stakeholders in the co-op sector, its 2019 report states that "steps…need to be taken by government, the private sector and co-operatives to ensure this business model is readily available and supported" (2). A national scan of co-operative infrastructure is beyond the scope of the present review; however, jurisdiction-specific case studies that assess the status, efficacy, and gaps in existing co-operative infrastructure are necessary for co-ops in the digital economy. Such an undertaking could find methodological

guidance in Pentzien's (2020) comparative analysis of the politics of platform cooperativism, which is based on a review of the legislation shaping platform co-ops in France, Germany, and the US. While Pentzien's research reveals the highly specific national context of the legal and policy challenges confronted by platform co-ops, this multi-country law and policy review nonetheless concludes: "many of the political and legislative obstacles that platform co-ops face worldwide are of comparable character—and can therefore be addressed in a similar fashion across different institutional contexts" (72).

This perspective is shared by several authors who describe, assess, and recommend strategies for supporting co-operative development based on observations and experiences of promising co-operative practices in different geographic settings, as well as on less place-bound, more imaginative policy thinking. Following from the challenges of co-operation presented in the previous chapter, the elements of supportive co-operative infrastructure identified in the reviewed literature tend to fall within one of the following five domains: 1) enabling legislation and policy; 2) alternative financing models; 3) co-op development support, including co-op-focused tech incubators; 4) co-operation among co-operatives, particularly via the formation of technology-sharing federations; and 5) building awareness of the co-op option at key sites of learning and new business formation.

Enabling legislation and policy

Enabling legislation and policy is a pillar of co-operative infrastructure. An underpinning assumption of the literature is, as Pentzien (2020) writes, that "governments shape the framework conditions for platform cooperativism" (61)—and for co-ops generally (Boyle and Oakley 2018, 5; Lawrence, Pendleton, and Mahmoud 2019; Papadimitropoulos 2021, 255; Theodos, Edmonds, and Scally 2020, 3, 4). Baseline co-op infrastructure includes a government act or statute allowing businesses to incorporate as a co-op. The impact of new law permitting co-ops is demonstrated by the introduction of South Korea's Framework Act on Cooperatives in 2012. This act, which allowed co-ops of five or more members, had "explosive" uptake with more than 7,000 co-ops incorporated within 30 months (Jang 2017, 80; see also: Ji 2020, 13). Contributors to the literature suggest that co-operative infrastructure can be improved not only by developing a co-op statute where none currently exists, but also by levelling the playing field when it comes to business registration. Referring to the UK context, for example, Muldoon (2020) recommends that governments streamline co-op incorporation and develop a "more user-friendly regulatory framework" (80).

As a first step to improving co-operative infrastructure, some authors recommend a review of government business support and funding programs to identify where co-ops are currently excluded or marginalized (Boyle and Oakley 2018; Dellot and Wallace-Stephens 2017, 35; ISED 2019, 7). The literature also notes co-op-related law in select jurisdictions that could be beneficial to co-ops in the digital economy, from "indivisible reserves," which improve a co-op's financial sustainability (Theodos, Edmonds, and Scally 2020, 12), to "asset-locks," which protect a co-op against de-mutualization (Dellot and Wallace-Stephens 2017, 35). Researchers also suggest legal reforms that could be particularly relevant to platform co-ops with a geographically dispersed membership. Co-op advocates in Quebec, for example, propose amending the law to permit "digital and remote voting in annual general assemblies" (Bigot-Vierdier 2018), while Pentzien (2020, 37) addresses the possibility of change to German law to allow members to join a co-op online.

The considerable attention devoted to co-operative infrastructure in the literature reflects a shift away from the valorization of "autonomy" within elements of the co-op movement, particularly in the US in the 1960s and 1970s (Duda 2016, 184–185; van Doorn 2017b). Authors acknowledge that the building of supportive co-operative infrastructure in the digital economy requires strategic engagement with the "partner-state" (Kostakis and Bauwens, cited in Schneider 2018, 333). As Lawrence, Pendleton, and Mahmoud (2019) remark: "It is no accident that cooperatives are more prolific in countries where policy has provided them with incentives and made their creation a priority" (17). The customary touchstone in this respect is Mondragon, the flourishing co-operative network in the Basque region of Spain (Enochs 2019).

Researchers also highlight supportive co-operative legislation in Italy and France, including, for example, a law that facilitates worker-buyouts, where government and co-op-sector partners join forces in financial and technical assistance programs to support workers who collectively purchase their employer's business and convert it to a worker co-op (Conaty, Bird, and Ross 2016, 70; Conaty, Bird, and Ross 2018, 85). Contributors glimpse similar possibilities in the US if the Main Street Employee Ownership Act, passed in 2018, is implemented (Pentzien 2020, 30; Scholz, O'Brien, and Spicer 2021). More broadly, Spicer (2020) finds that recent US-based organizing around worker- and community-ownership is rooted in increasingly networked and policy-savvy advocacy efforts, which have helped to advance co-op friendly policy at multiple political scales, including the municipal level, making concrete improvements for co-ops, such as "fee reductions...enhanced loan fund eligibility, and education and technical assistance around business conversion" (326).

Public procurement is identified as a particularly promising policy lever for improving co-operative infrastructure (Duda 2016, 186; McCann and Yazici 2018, 35; Scholz, O'Brien, and Spicer 2021; Spicer 2020, 330; Theodos, Edmonds, and Scully 2020, 16). Public procurement practices are one way the state can contribute to the shaping of markets (Pentzien 2020, 53, 69–70). Municipal government in particular is regarded as a strategic site for leveraging procurement policy to materially support co-operatives (see the discussion of Preston, UK, in Lawrence, Pendleton, and Mahmoud 2019, 25). Contracts with anchor institutions in the public sector could give locally oriented platform co-ops a head start in the market and put them on a more sustainable foundation (Pentzien 2020, 53). McCann and Yazici (2018) suggest, for example, that an upstart ridesharing platform co-op could try to secure a school transportation contract with a local authority (35).

Authors justify the favourable treatment of co-ops in public procurement policy by co-ops' beneficial societal outcomes, including keeping wealth in the local community and providing essential services (Theodos, Edmonds, and Scally 2020, 13). According to Theodos, Edmonds, and Scally (2020), "it would be appropriate for policy makers to encourage preferential procurement and contracting processes for cooperatives with a clear social mandate and mission, including those operating in underserved markets" (16). One example of local government acting as a partner in developing co-operative infrastructure comes from tech co-op Outlandish (London, UK). Outlandish received support from a local council authority to operate a coworking space, Space4, which is dedicated to promoting a "new generation of tech co-ops" (Muldoon 2020, 83). This partnership is a small example of a larger claim in the literature that the state in general, and municipal government in particular, can do a great deal to assist in creating co-operative infrastructure in support of pro-worker digital economies (Pentzien 2020, 68).

Alternative financing strategies

Of the various elements of co-operative infrastructure addressed in the literature, the most attention is devoted to funding. This is unsurprising given that the "capital conundrum" (Borkin 2019) is perceived as the greatest challenge facing co-ops. The position generally taken in the literature is that alternative financing strategies are required to advance co-operative development in the digital economy (Borkin 2019, 26; Conaty, Bird, and Ross 2018, 96). As McCann and Yazici (2018) state: "New funding structures need to emerge that can provide alternatives to the venture capital funding model that presently dominates the platform ecosystem" (42).

Specifically, the research identifies a pressing need for methods of accessing capital that do not fundamentally compromise co-operative principles like democratic member control. Co-operative infrastructure, it is widely argued, must include funding sources, tools, and strategies rooted in a "different set of priorities" (Borkin 2019, 26; see also: Alleyne et al. 2020). For Taylor (2016), "the project of creating cooperative enterprises is inseparable from creating a financial system that is productive rather than predatory, generative rather than extractive" (235). To this end, several authors describe longstanding, emerging, and potentially co-op-friendly approaches to raising capital to start, sustain, and scale co-ops.

The literature reviews a variety of funding sources that align with co-operative values. Co-ops seeking to improve livelihoods in the digital economy may find "patient-capital" allies in credit unions, non-profit organizations, established co-operatives, and social-impact investors (Conaty, Bird, and Ross 2018, 96; Duda 2016, 185; Gorenflo 2015; McCann and Yazici 2018, 27, 42; Schneider 2018, 331). Some foundations, for example, have supported platform co-op projects. Up & Go, for instance, received a grant from the Robin Hood Foundation in New York (Coca 2017), while the social co-op Equal Care in the UK received support from Open Society Foundations (Mayo 2019, 11).

Addressing philanthropic foundations in the arts and culture sector, Linares and Woolard (2021) argue that "grantmakers" ought to play an expanded role in the advancement of community- and worker-ownership through the provision of grants and loan capital (9). US-based foundations, they note, hold assets of $890 billion, yet many of these organizations annually distribute only a minimal fraction of that to "charitable purposes" (62). Noting the growing interest in co-operative ownership, Linares and Woolard identify an opportunity for foundations in the cultural sector to shift from being "curators" to "supporters" (9). By providing startup funding and other forms of assistance, grantmakers have an opportunity to reorient their existing strengths and "[make] a lasting impact by funding cooperatives...and other entities that centre economic and racial justice" both within and beyond the cultural sector (62).

Another strategy to increase the capital available to co-ops in the technology sector is through the social investment market. Evans (2020) proposes a campaign to "leverage ethical funds to invest in cooperatives" (32). Evans sets out to challenge the accuracy and integrity of normative definitions of ethical investing, arguing that genuinely ethical businesses ought to be reconceptualized as businesses that share profits and provide voice to workers and other communities most integral to and impacted by business operations, i.e., worker co-operatives. Making a "societal case" rather than a "business case" for sup-

porting co-ops, Evans imagines rechannelling wealth from the social investment marketplace to worker co-operatives that are committed to economic democracy (27). "If even just a small slice of socially responsible investment funds could be directed to cooperatives," Evans writes, "the amount of funding available to them would be immense" (29).

The literature describes a diversity of approaches to funding co-op startups, suggesting that there is no one-size-fits-all alternative financing model and that there is a great deal of experimentation underway in this area. Much of this innovation is being documented and advanced under the banner of "Exit to Community" (Alleyne et al. 2020; Schneider 2020a), a concept discussed in the next chapter of this report. Among the alternative financing strategies explored in the literature are those that maintain a role for individual investors. Authors nevertheless highlight that care must be taken to reconcile a co-op's need for capital with the risks inherent in external investor involvement, specifically to safeguard against risks to co-operative commitments of democratic member control and the sovereignty of labour over capital.

One of the alternative funding strategies explored in the literature is Borkin's (2019) proposal to resolve platform cooperativism's "capital conundrum" through "mutual shares." The term mutual shares is a platform-co-op-oriented rebranding of "community shares," which over the past decade in the UK have become a successful approach to spreading community ownership. As Boyle (cited in Alleyne et al. 2020) explains:

> Community shares are a project in the UK to mainstream investment into cooperative or shared ownership businesses for ordinary people. We link up enterprises, from village pubs to sports clubs and media companies, to ordinary people willing to invest—both for the returns they can get for their savings and the "social return" they'll get from the business they've invested in meeting their community's needs. It's about getting $500 from a thousand people, instead of $50,000 from ten people. (28)

Inspired by the success of community shares, Borkin (2019) presents a three-step funding model intended to assist platform co-ops in getting off the ground, and scaling. Seed capital for a platform co-op would come from an institutional social-impact investment fund, which he provisionally terms the "Platform Coop Fund." When a new, funded platform co-op reaches the point that it is generating revenue, the co-op would begin repaying the institutional investors from retained earnings while simultaneously seeking to raise new funds from

the platform's users via "public offers of mutual shares." To expand its available capital, the platform co-op would subsequently issue an "open offer," enabling members to "invest or withdraw share capital." These non-transferrable shares would, in theory, provide modest returns to members in the form of a dividend on equity, though members could be encouraged to reinvest their dividends in the co-op to "fill the gap left as institutional investors exit" (29–30).

Borkin's mutual shares framework is a crowdfunding-type approach to distributed ownership in platform co-ops. But the literature also notes strategies for involving a smaller number of impact investors who hold equity stakes. To deal with the contradiction between democratic member control and investor influence in a co-op, some platform co-ops such as Eva have resorted to creating a secondary, traditionally structured, corporation able to offer more conventional terms to investors (Mannan 2020, 28).

While researchers are generally careful to not make a virtue out of a necessity, there is evidence of openness among at least some platform co-ops to a multistakeholder structure that includes an investor member class and accommodates equity funding (Evans 2020, 11; McCann and Yazici 2018, 26–27). Rather than provide an equity stake with outsized voting rights, Brodsky suggests impact investors be repaid from a co-op's revenue: "yes, we can have an investor class, yes, we need to pay the investor class back an appropriate return. But we're going to do it either out of company revenue, or company profit" (Brodsky and Mason 2021). Suggestive of a more conventional venture capital arrangement in a platform co-op context, Pentzien (2020) notes legislation in Colorado, US, the Uniform Limited Cooperative Association Act, which "seems to meet a variety of needs in the cooperative ecosystem, namely the need of platform co-ops to bring in outside capital and ensure multistakeholder flexibility as well as the need of potential investors to not only receive a return on investment, but to also have some sort of say in the decision-making process of the cooperative" (23).

In terms of alternative funding infrastructure, the literature also notes the emergence of new co-op-oriented investment funds. One example is US-based Zebras Unite Capital, a partnership between the co-op Zebras Unite and SecondMuse Capital, which envisions supporting co-ops through access to "affordable debt and equity" (Dickey 2020). It draws the connection between the lack of diversity in tech startups and the absence of "equitable business models" (Schneider 2020a). Zebras Unite sets out to challenge intersecting inequities rooted in race, gender, and wealth that are perpetuated specifically through the dominant venture capital system.

A notable feature of the Zebras Unite strategy is that as its "fund invests in co-op members, (the) profits will be returned to the co-op and its members" (Dickey 2020). As a Zebras Unite board member explains, the success of one funded co-op "will feed the broader ecosystem and...not just continue to concentrate wealth" (Zepada, cited in Dickey 2020). This is a feature of several co-op-centred, mutualized financing models: when a supported co-op generates a surplus, it contributes to a co-op development fund, helping to seed additional co-operative projects. This strategy illustrates the "cooperative commonwealth" concept (Gourevitch, cited in Spicer 2020, 333), a gold standard of which is Caja Laboral, the credit union that has been integral to the growth of the Mondragon co-operative network. As The Next System Project (2019) explains, Caja Laboral is a "financial hub." Its provisioning of "financial support to nodes in a cooperative network" has a twofold advantage: it "brings down the costs of borrowing for nodes in this network and prevents leakages of accumulating capital out of the network."

Co-op development support

A third pillar of co-operative infrastructure is co-op tailored business development support or "technical assistance" (Linares and Woolard 2021, 17; Scholz, O'Brien, and Spicer 2021; Spicer 2020, 333; Spitzberg 2019; Theodos, Edmonds, and Scally 2020, 7). This encompasses support across a range of areas—from incorporation to business plans, governance, and marketing—to not only help new co-ops get off the ground but also to sustain and scale existing co-ops. As noted in the literature, one source of technical assistance is publicly funded business development advisors—if these advisors are trained in the co-operative model (ISED 2019, 5, 9). Government-delivered technical assistance could extend to include informational resources. Bigot-Verdier (2018) recommends the creation of a database of co-op business developers and financial support available to co-ops, for example. In keeping with the co-operative tradition's commitment to self-help, however, the literature tends to focus on technical assistance internal to the co-op sector. The ISED (2019) identifies an opportunity to leverage and expand co-op development capacities that already exist within the sector, per the stakeholder recommendation that the federal government "(support) sector-led co-operative business advisory services" (12), much of which in Canada is currently maintained by national and provincial co-operative associations.

Among the forms of technical assistance that receive attention in the literature are "incubators" and "accelerators." The co-op model is generally excluded from these key sites of new business formation in the digital economy. In an overview of co-op growth models, The Next System Project (2019) describes an

incubation hub as a node that is "responsible for developing new cooperative businesses, providing them with a range of supports that can include fiscal sponsorship, back-office services, business development, marketing, and training, with the goal of launching the incubated co-operatives as independent financial entities once they are ready to stand on their own." While Schneider (2018) sees opportunity for "collaborations between successful tech accelerators and cooperative financial institutions" (331), the literature reveals few concrete examples of such partnerships. The literature does, however, identify emerging initiatives within the co-op sector that adopt and adapt incubator- and accelerator-style practices. The co-op movement is said to be "taking a page from the Silicon Valley playbook" (Enochs 2019), though organizations and programs devoted to nurturing new co-ops are not in themselves novel to the co-operative sector.

The literature identifies several co-op incubators specializing in "knowledge-intensive industries" (Terrasi 2018, 70) and youth co-operators, including Uruguay's Incubacoop (70), Italy's Coopstartup (63), and Quebec's Sismic (Enochs 2019). Co-op incubators may not be new, but the literature suggests that there have been shifts in their composition, including an increased number of tech-oriented incubators (see Spicer 2020, 336–337) and the incorporation of elements of dominant incubator culture, like competitive application, pitch events, and prize money. But whereas corporate tech incubators frequently support founders in the building of companies that will ultimately be sold to an external buyer, co-op incubators support teams of co-operators in the building of worker- and community-owned businesses that address members' unmet needs and practice democratic governance.

Two examples are highlighted. In the US, the Boston-based Start.coop runs a 10-week entrepreneurial support program for new businesses with shared ownership built in from the outset (Brodsky and Mason 2021). Rather than take an equity stake in exchange for the provision of seed capital, Start.coop provides selected projects with $10,000-$20,000, which is later recouped from a nominal percentage of revenues (Enochs 2019). Start.coop's inaugural 2019 cohort included, among others, the data co-ops Savvy and Drivers' Seat Co-operative (Brodsky and Mason 2021; Enochs 2019; Spicer 2020, 337). And in the UK, Stir to Action, Co-operatives UK, and The Co-operative Bank have partnered on an accelerator program called UnFound (Borkin 2019, 36; Co-operatives UK 2021; Hadfield 2021; Mayo 2019, 11). Started in 2018, UnFound includes a 10-week workshop program with "industry experts," and provides emerging platform co-ops with mentorship by established platform co-op peers. In 2021, UnFound planned to accept two cohorts of eight teams and provide the

"support they need to get their platform business to work co-operatively as well as to develop their product, business planning and strategy, and branding and marketing" (Co-operatives UK 2021). UnFound awards a £10,000 prize at a final "pitch event" (Hadfield 2021).

While these programs have not been the focus of sustained research, some contributors to the literature offer reflections pertinent to emerging "'accelerator-like' efforts" (Borkin 2019, 36) in the co-operative sector. Spicer (2020) suggests that the politics of co-operative projects can be put under strain as "participants seek to appeal to entrepreneurs and economic agents across the ideological spectrum while remaining financially viable" (326). The literature also identifies limitations with short-term co-op development programs. "It's not enough to do a short training program and expect that the co-op is going to be able to go off on its own afterwards," explains one co-op developer: "It's really important to do follow up work, whether that's tech assistance or peer mentoring, connection to funding, financing, or other resources that might be needed" (cited in Enochs 2019). Contributors argue that supportive co-operative infrastructure requires incubators with durable institutional backing. Gorenflo (2015) suggests securing the "long-term support of a stable anchor institution, like a university," to support the design of replicable pathways for the development of platform and tech co-ops.

Along similar lines, numerous authors propose the creation of a publicly backed "national platform cooperative incubator that provides new co-operatives with the training and seed funding needed to get started" (Muldoon 2020, 82; see also: Bigot-Verdier 2018; ISED 2019, 5; Lawrence, Pendleton, and Mahmoud 2019, 5; Zygmuntowski 2018, 185–186). The literature identifies existing initiatives that point in this direction. In 2014, the Government of New York City launched the Worker Cooperative Business Development Initiative, for example. The City has steadily increased financial support for this program. As of 2019, it had provided $2.9 million in funding to 142 new co-ops (Enochs 2019). Beyond short-term accelerator programs and city-funded initiatives, Mayo (2019) suggests the creation of a "global secondary co-operative" to support the development of platform co-ops (25), a proposal that overlaps with the fourth element of co-operative infrastructure identified in the literature, co-operation among co-operatives, which is also one of the seven co-operative principles.

Co-operation among co-operatives

The literature shows that co-ops join forces to strengthen their individual and collective position in the digital economy. By practicing inter-cooperation, co-

ops recognize that the success of the alternative they represent depends, as Benkler (2016) remarks in a discussion of platform cooperativism, on "sharing our experiments and knowledge quickly and repeatedly in a network of cooperatives" (95).

There is a long tradition of inter-cooperation in the co-operative sector. One example is co-operative associations, whose members are individual co-ops. These associations are an example of an "advocacy and field building hub," whose contribution to the co-op movement is in part to "advance policy that collectively benefits their network, or that more generally advocates for and advances their field of activity" (The Next System Project 2019). An example of a field-building hub is the International Co-operative Alliance, which Mayo (2019) suggests could support platform cooperativism in a variety of ways, including brokering business partnerships between existing co-ops and new platform co-ops as well as encouraging existing co-ops to adopt the services and tools of platform co-ops (5).

One form of inter-cooperation identified in the literature is the mutual aid network of individual tech co-ops. Three examples are mentioned. Argentina's Federation of Worker Co-operatives in Technology, Innovation, and Knowledge (FACTTIC), which started in 2012, may be the first dedicated tech-oriented co-op network. As of 2018, FACTTIC had 16 member co-ops. These co-ops banded together not only to cost-share administrative services but also to "achieve economies of scale to compete with larger companies" by partnering on contract bids (Terrasi 2018, 62). A second example is the US-based Tech Co-op Network. As of 2016, this 25-member network operated a website and mailing list through which co-operators shared governance advice and sample bylaws, etc. (Metts 2016, 205).

A third example is the UK's CoTech. Initiated in 2016 by the tech co-op Outlandish, CoTech is a 32-member "network of cooperatively-owned tech firms," whose areas of expertise range from web development to filmmaking to augmented reality (Hulyer 2018). Members train and support each other through skills-sharing and meetups. The CoTech network also makes it easier for smaller individual tech co-ops to trade services between themselves as well as to team up for bigger projects, including bidding on contracts with established offline co-ops, ultimately enhancing the competitiveness of co-operatively delivered tech services (Dellot and Wallace-Stephens 2017, 23; Hulyer 2018; Sheffield 2018; Terrasi 2018, 62–63). While the literature tends to discuss tech co-ops and platform co-ops separately, Metts (2016) encourages greater inter-cooperation, believing they "will both be stronger if they work together" (204).

One of the inter-cooperation strategies that platform and tech co-ops have advocated for and experimented with is federations. The federation model is presented in the literature as a means of overcoming some of the challenges of co-operation discussed earlier. Researchers identify different forms that co-operative federations can take. A "federated co-op" can refer to "a model in which a group of co-operatives, often smaller and place-based, form and become members of 'parent' co-operatives" (McCann and Yazici 2018, 20–21; see also: Alleyne et al. 2020, 51). These are sometimes referred to as "consortia co-operatives," whose members (who may or not be co-ops) "contribute a modest sum to pay for support that everyone has an interest in receiving" (Dellot and Wallace-Stephens 2017, 15). An adjacent structure is the "secondary co-operative," which, according to Conaty, Bird, and Ross (2016), "unites the co-operatives and enterprises through mutual aid and typically through the provision of a number of back-office services" (66). The federation concept is not new to the co-op sector. This strategy is well developed in agriculture, for instance, where individual farmers join a co-operative federation that operates shared processing facilities and common distribution channels.

Several authors argue for the value of the federation approach for emerging platform co-ops squaring up against incumbents that reap positive network effects. In an early contribution to the literature, Gorenflo (2015) suggests platform co-ops share technology among themselves as they "gain a cost advantage by developing a common software infrastructure." This was one of the lessons drawn by McCann and Yazici (2018) from the challenges experienced by Yamuv, a ridesharing platform co-op project in the UK. They argue that the prohibitive expense of developing and maintaining the technology necessary to compete with incumbents, and to scale, calls for co-operatively federated technology (42–43). Similarly, Mannan (2020) reports that Montreal-based rideshare co-op Eva moved to a "social franchise" model as its founders recognized "that cooperative and mutual alternatives to corporate entities would struggle to grow without a shared technological infrastructure" (4).

So, where traditional corporations naturalize competition, the co-operative tradition emphasizes mutualization. Co-operatively federated digital infrastructure is presented as an alternative to the economically "wasteful" duplication of technology across co-ops in different locations (McCann and Yazici 2018, 30; Mannan 2020, 4). One approach to co-operatively federated technology is to form a secondary co-op that owns and manages the technology in service to the federation's members, individual local co-ops (Mannan 2020, 34–35). In this model, multiple co-ops mutualize digital infrastructure while individual local co-ops manage their own operations. In this way, the formation of federations is seen as a promising strategy for platform co-ops with

transnational memberships to maintain trust among local communities as they scale (Scholz, O'Brien, and Spicer 2021).

Location-based labour platform co-ops are experimenting with the federation strategy. Up & Go is a secondary co-operative co-owned by a handful of individual cleaning co-ops. Up & Go develops and manages a matchmaking platform connecting cleaners and clients. Five percent of worker-owners' bookings help to pay for Up & Go's technology (Coca 2017). CECOP (2021) reports that platform co-ops in Europe, too, are beginning to use a federation model to "provide the digital infrastructure" to support the growth of co-ops in the platform economy (4). For example, CoopCycle is a nascent network of approximately 20 locally based, worker-owned delivery co-ops in Belgium, France, Germany, and Spain (CECOP 2021, 4; Eum 2019, 38). Notably, CoopCycle's charter stipulates that its "software can only be used commercially by social and solidarity economy organisations, mainly cooperatives, and that these organisations should provide employment contracts to worker-members" (Eum 2019, 39).

Federated digital infrastructure is improving the technical conditions for platform co-ops to emerge and scale. According to Schor and Eddy (2020): "The costs of the basic technology are in decline, and there are efforts underway to create open-source toolkits that will make establishing a platform cooperative relatively easy" (28; see also: Mayo 2019, 9). While technology-sharing receives the most attention in discussions of the federation model in the literature, contributors acknowledge that the scope for mutual aid in digital co-operative economies is more expansive than just technological infrastructure and tools. "Platform cooperatives," writes Gorenflo (2015), "can share much more than software including data, digital reputation, knowledge, marketing, public relations, legal, lobbying, and physical space."

Beyond economic efficiency and market impact, authors argue for co-operative federations on ethical and political grounds. The federation strategy reflects the co-operative commitment to mutual aid. Relevant here is Bauwens's concept of "protocol cooperatives," or "global open-source repositories of knowledge, code, and design that allow humanity to create infrastructure for the mutualization of the main provisioning systems (such as food, habitat, mobility) [and] that are governed by the various stakeholders involved, including the affected citizenry" (cited in Mannan 2020, 4). Co-operatively federated technology also puts into practice the belief underpinning the protocol co-operative idea that "it is not possible to build or overlay a digital 'commons' on a privatized infrastructure" (Mannan 2020, 4).

How co-ops share technology reveals, moreover, some of the boundaries on the commons, or the limits of openness. In the above-mentioned examples, digital infrastructure is not shared freely. Rather, it is accessible to organizations rooted in co-operative values around working conditions and economic democracy (see: Eum 2019, 39; Mannan 2020, 9). As Troncoso and Utratel (2019) write: "federations are held together by shared commitments" (32–33). Federation, Troncoso et al. (2020) add, is a potential alternative to the risks of scaling, "where a worldview is simply extended from a center of power and forces everything in its path to conform to its values" (47).

Inter-cooperation also encompasses spaces of communication and digital tools by and for co-operators. In a report on a workshop with practitioners and allies from the platform co-op community, Spitzberg (2019) identifies the online forums where platform cooperativists interact and find each other, including, among others, listservs, Twitter, Facebook groups, and web directories. Yet many platform co-op practitioners want "a more dynamic communication tool" (Zimmerman, cited in Spitzberg 2019). "Creating ways for practitioners to interact with structured case studies or open-ended chats," Spitzberg (2019) suggests, "can open space for more of what participants said they wanted: more advice, resource sharing, and connections." In addition to inter-co-op dialogue, the literature shows that co-ops also enrich co-operative infrastructure by developing and circulating digital tools that facilitate working co-operatively. Examples include Loomio, a non-hierarchical decision-making tool; CoBudget, a budgeting tool from Outlandish; and DisCO Deck, a project of Guerilla Media Collective members to create an "adaptable platform to facilitate the value tracking, redistribution, and payment protocols of any given DisCo's governance model" (Troncoso et al. 2020, 15).

Building awareness of co-ops

It is widely argued that raising awareness of co-operatives is vital to growing their presence within and beyond the digital economy (Borkin 2019, 7, 36; Boyle and Oakley 2018, 10; ISED 2019, 2–3, 5; Mayo 2019, 5; Moxom et al. 2021, 38). Flowing from this, enhanced public knowledge of the co-op option is the fifth element of supportive co-operative infrastructure identified in the literature. Authors make recommendations for building knowledge about co-ops, with a focus on strategic sites of business service provision, education, and new business formation. As we've already mentioned, co-op advocates argue for levelling the playing field between conventional business forms and co-operative structures by training public frontline business development officers in the co-op model as well as by educating gatekeepers in the financial sector about co-ops. Researchers also highlight the need to incorporate the

co-op model into business school curricula and training settings for workers in creative industries (Boyle and Oakley 2018, 10; Moxom et al. 2021, 58; Terrasi 2018, 52). In terms of education, supportive co-operative infrastructure would also require expanding co-op-centred management and governance training, helping co-operators learn to run their businesses democratically (Boyle and Oakley 2018, 10). As to strategic sites of new business formation, Borkin (2019) calls for bringing greater awareness of the platform co-op model to the "wider tech start-up ecosystem" (37). Doing so would involve raising the profile of the co-op option within mainstream incubators, accelerators, and coworking spaces (Bigot-Verdier 2018).

Strengthening co-operative infrastructure by deepening understanding of co-op options in business services, education institutions, and the tech startup system would go hand-in-hand with a "sustained effort to make the cooperative model more widely attractive" (Lawrence, Pendleton, and Mahmoud 2019, 38). More than a public-relations exercise, such an effort would need to be supported by organizing, including gathering potential institutional co-op allies from universities to unions (Gorenflo 2015). By emphasizing robust societal awareness of co-ops, researchers acknowledge the central role of culture in shaping the prospects of worker co-operation in the digital economy (see: Lawrence, Pendleton, and Mahmoud 2019, 24; Scholz 2016a, 27).

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This chapter has provided an overview of responses to the question of what conditions are necessary for co-ops to proliferate and thrive in the context of the digital economy. The literature clearly indicates that there is no single condition of possibility, and certainly not a technical solution, to these challenges. Instead, growing the number of platform and tech co-ops depends on the imagination, design, and maintenance of co-operative infrastructure, or an ecosystem of multiple, interacting elements that underpins and supports co-operative livelihoods.

Co-operative Ownership Paradigms

The co-operative model is positioned by advocates as an alternative business form capable of advancing economic democracy and social justice in the digital age. This potential is attributed primarily to two structural features of co-operatives that set them apart from conventional businesses: shared ownership and democratic governance. Co-operative ownership is associated with spreading economic rewards more evenly, with recognizing a wider range of sources of value contribution, and with distributing decision-making power such that businesses better reflect and remain accountable to the needs and aspirations of those who work in them or are impacted by their operations. Digital co-op projects also demonstrate a distinctly co-operative shaping-of-technology dynamic of wider relevance to discussions surrounding the "future of work."

artwork by Goce Ilievski

Distributed ownership, democratic governance

Many of the co-operative projects described in previous chapters of this review are rooted in the assumption that labour problems and power imbalances in the digital economy derive from the prevailing ownership paradigm and from traditional business structures. Orsi (2016) captures a perspective implicit in much of the reviewed literature: "In a world where the dominant models of doing business are widely recognized to be escalating inequality and destroying the planet, we desperately need to build economic operating systems that achieve the exact opposite" (96–97). It is in this context that the literature positions the co-operative as an alternative business form that can help to democratize the digital economy (Borkin 2019, 6), with advocates calling for what van Doorn (2017b) describes as "an entirely different approach to running a business, as the primary goal becomes to benefit its community of member-owners instead of just its executives and shareholders."

The view that co-ops hold potential to improve working conditions and counter power asymmetries in the digital economy rests upon two structural features identified as the distinguishing traits of the co-operative form: democratic ownership and shared governance (Benkler 2016, 94; Enochs 2019; Lawrence, Pendleton, and Mahmoud 2019, 6; Scholtz and Schneider 2016, 12). The substantive democratization of ownership through co-operation is contrasted to weak conceptions of democracy that continue to linger in mainstream discourse on digital technology, such as the reduction of democracy to access and the assumption that decentralization is inherently progressive (see: Schneider 2016b; Schneider 2018, 330). Brodsky (cited in Brodsky and Mason 2021) identifies co-operative ownership with two specific rights: a "profit-share right" and a "governance right." These twin rights underpin the belief that co-ops are a powerful tool for advancing economic democracy, with the capacity to serve as an antidote to wealth inequality, concentrated ownership, low labour standards, discrimination, and lack of transparency, accountability, and voice in the digital economy (see: Schor and Eddy 2020, 23).

Redistributing economic rewards

Tied to the profit-share right, co-operative ownership is presented as a means of mitigating wealth inequality by redistributing economic rewards in a more egalitarian way than conventional companies do. The literature troubles the inequitable outcomes of the prevailing models of shareholder-driven business, venture capital investment, and founder culture in the tech sector and beyond (Alleyne et al. 2020; Borkin 2019; Brodsky and Mason 2021). Troncoso et al. (2020) identify the crux of the wealth inequality problem in the narrow political horizon of the technology industry: "For all their disruption, the one thing Silicon Valley has not touched is the ownership and governance structure of a typical capitalist firm" (18). This observation reflects a running thread in the literature—the contention that alternative ownership paradigms are necessary to counter wealth inequality and its intersections with race and gender divisions. Lawrence, Pendleton, and Mahmoud (2019) outline the logic underlying this perspective when they argue that "how businesses are owned—who has distributional and control rights within the firm and also who captures the value they add—vitally shapes how they operate, in whose interests, over what time horizon, and how they distribute their profits" (6). In turn, they propose: "Overcoming our deep, structural economic challenges will require systemic solutions, because our poor outcomes are rooted in how we organise the economy and its institutions. If more people are to benefit from economic production, then economic power and control must rest more equally, requiring measures to redistribute ownership and control" (11).

Co-operation is positioned as one such measure. Co-operative ownership, in Schneider's (2020a) words, formalizes "the common-sense recognition that what a group of people creates together and relies on should be those people's common possession." Co-operatives are associated with a distinct incentive structure, a key aspect of which is the group whom the business is designed to serve. Co-operative ownership paradigms, as McCann and Yazici (2018) explain, "place incentives on managers to maximise the long-term value to the members of the co-operative, rather than short-term profit" (11). As the literature makes clear, this member-orientation does not imply that profit—or surplus, in co-op parlance—is not of concern. Indeed, core to the egalitarian promise of co-operative ownership is the co-operative principle of members' economic participation, or the profit-share right. Whereas in traditional corporate structures "profit accrues to the small group of owners and investors at the top of the pyramid, a co-operative model," according to McCann and Yacizi (2018), "may allow the value to flow back down toward the creators thereby challenging the concentration of wealth in the hands of a powerful few" (17).

We have already provided examples of egalitarian income distribution in digital co-ops, whether a tech co-op that adopts a flat pay structure or a platform co-op that provides worker-members with superior earnings to those from incumbent platforms. In the context of a discussion of co-ops in creative industries, Boyle and Oakley (2018) argue that co-op ownership models have the merit of enlarging the community of financial beneficiaries, beyond a narrow group of owners and external investors, to include creative labour (10–11). As an example, Papadimitropoulos (2021) notes that, in one recent year, Stocksy, the digital photography co-op, distributed 90% of its surplus to artists, while 5% went to employees and founders (254). Rather than distribute economic rewards according to the amount of capital invested or shares owned, co-ops disperse surplus in more equitable ways, such as on the basis of patronage, measured by, say, a member's total hours of work (Alleyne et al. 2020, 23; Mannan 2020, 28; Sandoval 2016, 63). The principle of members' economic participation does not mean, however, that surplus is redistributed in its entirety to member-owners (Brodsky and Mason 2021). Co-operative legislation may require a co-op to retain a percentage of its earnings, for example, and members can have a collective say in how a co-op's surplus will be distributed.

To the extent that co-operative ownership entitles workers to a share of the profit generated by their labour, there are certain parallels between co-ops and the concept of the Employee Stock Ownership Plan (ESOP), "a policy-aided expansion of access to capital ownership," which has been a part of employee-benefits law since the 1970s in the US (Schneider 2020b, 16). For Schneider, as long as "the capitalist corporation is to remain a basic economic unit," the ESOP model is a relevant tool of redistributive justice (23). Schneider acknowledges the ESOP's limits, noting, for instance, how "turning more people into capital owners…further turns society as a whole toward profit-seeking at all costs, above other conceptions of what constitutes the common good" (18). From the perspective of worker co-ops, which dissolve the boundary between owners and workers, Sandoval (2016) further critiques ESOPs and similar models (62). "Employee ownership," Sandoval writes, "says little about how decision-power is organised, which typically remains hierarchical and unevenly distributed. Radical worker co-operatives on the contrary are based on collective or common ownership and democratic decision-making" (60). Mayo (2019) insists: "Democracy in a cooperative means more than an exercise of financial power" (13; see also: Benkler 2016, 94). This reminder takes us to another central theme in the literature: co-operative governance.

Co-operative governance, digital deliberation

In making their case for co-operatives in the digital economy, researchers draw

connections between workers' conditions and governance practices in conventional companies. Referring to dominant gig work platforms, Schor and Eddy (2020) note the lack of "formal mechanisms in the sector for effective [worker] voice" (15). In their International Labour Organization report on global platform labour, Rani et al. (2021) elaborate on this problem of voice by describing how platform companies use terms of service agreements to unilaterally set conditions of, and regulate access to, work. "This form of governance," they argue, "allows platforms to exercise considerable control over platform workers' freedom to work, and can shape how and under what conditions clients or businesses engage with platform workers, through exclusivity clauses, for instance" (20). The potential of the co-operative as an alternative to one-sided labour management strategies is attributed to what Lawrence, Pendleton, and Mahmoud (2019) describe as the "democratic structure of coops" (13) as reflected in the co-operative commitment to "the sharing of formal decision-making power" (8) among members as well to one member, one vote, irrespective of the amount of capital each member holds.

It is not claimed in the literature that co-operative ownership magically dissolves workplace tensions (Lawrence, Pendleton, and Mahmoud 2019, 13). Instead, it is argued that how a business operates, and the effect of those operations on workers, have the potential to shift to workers' advantage when voice and control are formally distributed to stakeholders other than investors and a small group of owners and managers (Brodsky and Mason 2021). By extending decision-making power to workers, the co-operative business form "reduces the risk of labor abuses that can exist in employer-employee relationships, such as wage theft or forced overtime, while aligning incentives to ensure workers have access to healthcare, adequate safety training and a healthy work environment" (Evans 2020, 9). Rani et al. (2021) similarly see co-operatively owned platforms as more likely to generate positive outcomes for workers: "Given that work on these platforms is co-determined and decisions are taken based on participatory democratic processes, platform cooperatives are likely to be more transparent and accountable to their members than digital labour platforms in which many functions are algorithmically managed" (88). More broadly, Sandoval (2020) suggests that co-operatively governed workplaces "challenge the depoliticisation of economic life" (807).

The dispersal of decision-making power forms the basis of claims for the potential of co-operatives to empower workers in the digital economy. A continuum of democratic governance practices is identified in the literature, from representative to participatory models (Alleyne et al. 2020; Enochs 2019; Mannan 2020). For instance, co-op members may elect representatives to a board of directors that performs what Alleyne et al. (2020) describe as "high-level gov-

ernance, such as setting the mission, setting a few limitations on how it can be achieved, and periodically overseeing progress toward those ends" (58). In an example of member representation, Eva, the multistakeholder rideshare co-op, provides each member-class a set number of board representatives, with the greatest number, two of five positions, reserved for worker-members (Mannan 2020, 31). Beyond electing directors and voting at annual general meetings, the literature addresses the importance of policies and bylaws as governance mechanisms for steering how a co-op pursues its aims, distributes surplus, and apportions and facilitates member voice (Alleyne et al. 2020, 23; Anctil 2016). "Union co-ops" enable additional worker co-governance through the collective bargaining process (Bird et al. 2020; Conaty, Bird, and Ross 2018; Criscitiello 2016).

The degree and kind of democratic participation varies across co-ops, and member engagement and management accountability are persistent challenges (Schor and Eddy 2020, 22). A study of co-operatives of independent workers in Finland (Puusa and Hokkila 2020) found, for example, that members' participation could be limited when the primary motivation for joining a co-op was, instrumentally, to become eligible for government income-security benefits. Day-to-day worker participation appears to be highest in worker co-ops where worker-owners are engaged in joint production. In an account of worker co-ops in the cultural sector, Sandoval (2016) emphasizes worker control, noting "the principle of democratic decision-making means that workers gain control over various aspects of their economic lives including business planning and business strategy, working hours, how income is distributed or how work is shared" (63).

Worker control dovetails with another theme in the literature, deliberation, which Bartlett describes as the challenge of "how you get a small group of people to negotiate, organize, make compromises, and build consensus" (Bartlett and Deseriis 2016). Many co-ops strive to reach decisions by consensus rather than majority, with the tech co-op Outlandish practicing sociocracy, for example (de Peuter et al. 2020; Hulyer 2018). In a case study of Loomio, a tech co-op, Jackson and Kuehn (2016) highlight transparency, where "workers have access to almost all of the company's information and are involved in decisions made about long-term strategy, quarterly planning, and daily work" (418) as a condition of workplace democracy. Workplace democracy does not mean, however, that hierarchy is flattened completely. This much is suggested by tech co-op Enspiral's ethos of leadership, which holds that "everyone should lead some of the time, no one should lead all of the time and leadership should be balanced with active followership" (cited in Pazaitis, Kostakis, and Bauwens 2017, 13).

The research specifically speaks to co-operative practices of digital deliberation. Authors highlight how digital technologies are being used to enhance member participation in co-operative governance and, in this respect, according to Borkin (2019), "platform co-ops may themselves offer an advantage over traditional co-operatives" (21). Co-ops' use of digital technologies in decision-making can be situated in a wider set of experiments in "listening at scale" (Tang, cited in Alleyne et al. 2020, 59–60). An example of digital governance comes from Stocksy, a co-op of approximately one thousand members spread across dozens of countries. Demonstrating what Grayer (2020) reports is Stocksy's "commitment to worker voice" (59), this co-op operates an online forum where any member can post, discuss, and vote on proposed resolutions. Papadimitropoulos (2021) describes it as a "transparent, flat decision-making process" (254). How the Stocksy forum works is summarized in a report by The Next System Project: "When an idea is posted, a round of voting begins automatically and a discussion space for that idea is created. 'This first round of voting indicates whether or not membership believes the idea is one worth additional discussion, providing a quick way to assess and prioritize ideas'" (Cook, cited in The Next System Project 2019). Schor and Eddy (2020) found that Stocksy's "members were mostly satisfied with governance," and noted a high proportion of the membership—20 to 30%—participated in this co-op's online assemblies (26).

Also explored in the research are co-op-made digital tools that facilitate co-operative governance and participatory decision-making. Loomio receives considerable attention in this regard (Bartlett and Deseriis 2016; Jackson and Kuehn 2016; Ridley-Duff and Bull 2021). Naming both a tech co-op and software, Loomio is described by one of its founders, Richard Bartlett, as "a minimal decision-making tool" (Bartlett and Deseriis 2016). Loomio responds to the need for groups to arrive at decisions in a non-hierarchical way (Jackson and Kuehn 2016, 426). It enables individuals to propose, vote on, and amend their position on a proposal as it is discussed. According to Bartlett, "Loomio's main feature is to nudge groups toward consensus" and aims to expand "access to the skills of deliberation" (Bartlett and Deseriis 2016):

> Most people are alienated from deliberation... We don't do it in the workplace, and we don't do it in our political system. We don't learn the skills on how to do it. So you have people in the streets with really naïve expectations about how government should operate. Because they never practiced making a compromise, making a negotiation, coming to a "good enough" consensus between disparate parties. That is the work of democracy, and most people are excluded from practicing it ever.

Used by several co-ops, social enterprises, municipalities, and activist groups (Bartlett and Deseriis 2016), Loomio's uptake contributes to what Ridley-Duff and Bull (2021) describe as "the normalisation of co-operative democracy" (1447). In addition to Loomio, digital resources for co-operative governance noted in the literature include DisCO DECK, described by Troncoso et al. (2020) as an "adaptable platform to facilitate the value tracking, redistribution and payment protocols of any given DisCO's governance model" (15). Like Loomio, DisCOs are understood, in part, pedagogically. Troncoso et al. (2020) refer to DisCOs as "a training ground for deliberative, inclusive decision-making processes, preparing members for responsible civic action" (85), while Bartlett says Loomio works "to train and support people in the heart of deliberation" (Bartlett and Deseriis 2016). This approach opens up the wider challenge of educating for co-operative governance. As Boyle and Oakley (2018) note, sustaining co-operative business requires training not only in business operations and strategy, but also "training in how to co-operate, how to participate effectively in the governance of the co-op" (6).

Workers and beyond

While much of the literature focuses on worker co-operatives, a significant strand addresses "multistakeholder" co-operatives in which ownership and control are distributed among two or more groups, or member classes, including workers (Novkovic 2020, 222). In principle, the multistakeholder model recognizes that value is generated by a wider range of communities than just employees, extends formal voice to communities that are impacted by or support a co-op's operations (Alleyne et al. 2020, 23; Dickey 2020; Troncoso and Utratel 2019, 32–33), and enriches a co-op's capacity by enabling access to "a more diverse convergence of, not only financial capital, but also social capital and intellectual capital" (Zepeda, cited in Dickey 2020). A governance innovation illustrating the possibilities of the multistakeholder co-op, the FairShares Model is summarized by Novkovic (2020):

> Proponents advocate that each stakeholder group ought to participate in decision-making and income distribution—the founders, workers, users, and investors. The model attempts to socialize power and wealth, moving distributional and decision-making rights from a single stakeholder (owners of capital in the case of investor-owned firms; or labour, producer or user in the case of cooperatives) to multiple stakeholders by issuing a separate class of shares depending on membership type. (229)

Several authors suggest the multistakeholder model is well suited to digital economy contexts. Troncoso and Utratel (2019) conceptualize DisCOs, for example, as "multiconstituent," encompassing communities contributing to a co-op's "value chains or affected by the coop's actions. Beyond workers," they add, constituents "may include neighbouring communities, suppliers, clients, reproductive and affective labor, financial backers etc." (32–33). The multistakeholder model better reflects the productivity dynamics of digital platforms specifically. As Schneider (2018) argues: "Traditional lines that distinguish worker-owned, consumer-owned, or producer-owned co-ops tend to blur in a platform economy where much of a platform's value comes from the contributions and resources of people who are not the company's employees" (332). As Eum (2019) explains, an app's stakeholders could span "technicians who develop the app, users who work or provide goods and services through the platform, users who use and consume through the platform, supporters of its social aim, (and) investors" (39). Research on platform co-ops in Germany found that most of them are not structured as worker co-ops but instead develop "digital infrastructures" owned and governed by various constituents (Pentzien 2020, 38). For instance, the short-term accommodations platform co-op Fairbnb adopts "a multi-stakeholder approach because they assume that a successful and sustainable short-term rental market can only be realized if all relevant stakeholders (including hosts, renters, city councils, neighbors, hotels) have a say in the platform's decision making" (50).

The reviewed literature attributes advantages as well as disadvantages to the multistakeholder model. Under advantages, for example, having multiple member groups potentially offsets the risk of a co-op controlled exclusively by workers or consumers pricing goods or setting pay at levels that are unsustainable or highly extractive (Theodos, Edmonds, and Scally 2020, 8; Zygmuntowski 2018, 185). On the other hand, governance challenges can arise in multistakeholder co-ops, particularly when there are irreconcilable conflicts of interest between member groups (van Doorn 2017b). Novkovic (2020) acknowledges governance difficulties can emerge when differences between member classes are accentuated, but argues that such difficulties can be overcome in multistakeholder co-ops with labour justice goals where member classes do not necessarily see themselves as competing interest groups but rather "engage in solidarity with others for a common purpose" (222).

While one approach to co-op growth is to create a multistakeholder co-op from scratch, the literature devotes greater attention to conversion—the process of transitioning a conventional business to co-operative ownership (Schneider 2018, 336). Researchers address worker buyouts, for example, with Conaty, Bird, and Ross (2018) noting legislative frameworks and corresponding finan-

cial support and advisory services in Italy and France that enable employees to collectively purchase their employer's business (85). Worker co-op conversion is seen as a timely business succession strategy amid the impending wave of retirements among small-business owners (Pentzien 2020, 30). An example of converting a privately held business to community ownership noted in the literature is *The Devil Strip*, an alternative weekly in Akron, Ohio. Recognizing readers' vital contribution to this media outlet, the publication transitioned to a "fully reader-owned media cooperative," whose reader-owners co-determine "the future of the publication" (Coca 2019).

On the prospect of converting existing digital platforms to community ownership, the literature addresses a proposed user buyout of Twitter, an audacious campaign that brought heightened attention to platform cooperativism. Schneider pitched this idea in a 2016 article in *The Guardian*, asking, "What if users were to band together and buy Twitter for themselves?" Coordinated by Danny Spitzberg, the subsequent campaign calling on the social media company's board "to consider the option of a conversion to user ownership" was endorsed by the International Co-operative Alliance (Mayo 2019, 7). The shareholder resolution submitted for consideration at Twitter's 2017 AGM won 36 million votes, just under 5% of total votes and above the 3% required to resubmit the proposal (Mayo 2019, 7). This campaign helped to propagate alternative ownership imaginaries for platform businesses, which would, as McCann and Yazici (2018) write of platform co-ops generally, "(widen) the number of people with a stake in the company and therefore (spread) power" (12).

Experiments in this direction are gathered under discussions of "Exit to Community," or E2C (Alleyne et al. 2020; Schneider 2020a). This concept intervenes in the menu of outcomes, or "exits," typically sought by tech startups; namely, being acquired or an IPO (Alleyne et al. 2020, 9). E2C's proponents note that founders can, however, have diverse aspirations, and can lament the compromises necessary to access venture capital investment to realize their projects (Alleyne et al. 2020, 14). Seeking "a better kind of startup" (Alleyne et al. 2020, 5), E2C identifies alternative exit options, one of which is to convert startups to co-ops (11). E2C sets out to advance strategies that break the perpetuation of wealth inequality in tech and its intersection with race and gender divisions, especially as these inequalities are reflected in and reinforced by the venture capital system and investor-controlled businesses (Alleyne et al. 2020, 6; see also: Brodsky and Mason 2021). E2C amplifies the general perspective of the literature that the formation of co-operatives, with "distributed" and "inclusive" ownership paradigms, is, as Zepada (cited in Dickey 2020) states, one of the "practical, tactical steps" that can be taken to combat inequality and

shift wealth to marginalized communities (see also: Theodos, Edmonds, and Scally 2020, 2; Enochs 2019; Linares and Woolard 2021, 35; Spicer 2020, 336).

Exit to Community elevates ownership models that recognize and redistribute value and voice beyond the exclusive ambit of founders and investors (Alleyne et al. 2020, 10; Schneider 2020a). It prioritizes the inclusion of a range of groups who help to create and are affected by a business (Alleyne et al. 2020, 23). In the E2C context, "community" designates "the group of people who especially depend on a startup—who built it, who are brought together by it, and who are the ones most impacted by it" (Alleyne et al. 2020, 9). In a multistakeholder co-op model, this group could span, for example, "workers, users, workers-who-aren't-being-recognized-as-workers, client businesses, artists and artisans, suppliers" (9). To delimit their community and in turn allocate governance rights, E2C challenges startups to ask: "Whose lives or rights are affected—or are likely to be impacted—by the company's operations?" (31–32). E2C does not exclude founders and investors as stakeholders, however. Indeed, Alleyne et al. (2020, 27) argue that E2C initiatives should reward founders' work and risk-taking, and warn "if they don't, communities may produce resentful founders and investors who won't be interested in helping to seed more communities." Nonetheless, to prevent investor involvement from "(creating) power imbalances that disempower community owners" (23), E2C stresses the importance of establishing bylaws and other governance mechanisms to preserve the co-op's mission and collective ownership of the co-op's assets (see: Orsi 2016). For Alleyne et al. (2020), E2C ultimately aims to make a startup an enduring community resource, "co-owned and co-governed by those who give it life" (5). Central to E2C is leveraging governance practices associated with democratic ownership to improve "accountability over technology" (12). In this respect, elements of E2C could be applied to dominant platform companies, too, by pushing for worker and user representation on boards, for example (Schneider 2020a). More broadly, one of E2C's underpinning beliefs is that "(o)ur technology could have more capacity for good if it were accountable to the people who use and build it" (Alleyne et al. 2020, 6).

Exit to Community resonates with a concept that regularly surfaces in the literature: the commons. "(T)he commons," write Troncoso et al. (2020), "has long been defined as communities working together with shared resources to achieve common goals" (29). In a discussion of data co-operatives, Hall (2001) notes that commons, or "a collective set of resources," can involve a variety of ownership configurations: they may be "owned by no one; jointly owned but indivisible; or owned by an individual with others nevertheless having rights to usage." Co-operatives are positioned as one organizational model through which to "formalize the practice of commoning" (Troncoso et al. 2020, 29).

Several authors identify Elinor Ostrom's work on the commons as a particularly vital reference for platform cooperativism (Benkler 2016, 94). Nicoli and Paltrinieri (2019) take from Ostrom an understanding of the commons as not so much a resource but a set of "institutional arrangements," specifically "a distribution of rights (bundle of rights) of access and management of resources among commoners, or rather, as institutions for collective action" (806). Disputing the inevitability of the "tragedy of the commons," Ostrom's work on "common pool resources" is situated by Ridley-Duff and Bull (2021) within a tradition of "socially owned infrastructures for open governance and sharing by autonomous institutions and individuals who co-operate for mutual benefit" (1441; see also: Benkler 2016, 94; Schneider 2020b, 18; Troncoso and Utratel 2019, 11).

Many authors conceptualize co-operative ownership, in the words of Bauwens and Kostakis (2016), as a strategy "to reorient the platform economy around a commons-oriented model" (166; see also: Gorenflo 2015; Ridley-Duff and Bull 2021, 1441). For example, Nicoli and Paltrinieri (2019) read platform co-operativism as a contemporary contribution to historical movements for a shift "from exclusive ownership to inclusive ownership" (802). Specifically, these authors observe in the platform era grounds for what they theorize as the "common firm" (806), suggesting that the claim for common ownership is all the more robust in the case of digital platforms where ownership is effectively "an institutional arrangement intended to govern the resource itself," or, where the platform firm is fashioned as "an institution in which ownership corresponds to governance" (802). The commons ethos surfaces in writing on DisCOs, too, with Troncoso and Utratel (2019) layering the notion of stewardship into the discussion of co-operative ownership in the digital economy: "DisCOs," they write, "steward existing common wealth and generate new forms of shared resources" (32–33). Theorized in this way, co-op members are not narrowly conceived as co-owners but as "commoners," or "people in communities who steward their own resources according to the rules, norms and values they set for themselves" (Troncoso et al. 2020, 88).

The co-operative shaping of technology

Running through the literature is the assumption that a business's behaviour is likely to shift under co-operative ownership when voice is formally extended to workers and other communities rather than largely restricted to a sole proprietor or the largest shareholders. Such a shift is visible in examples of what, following the social shaping of technology perspective, might be called the co-operative shaping of technology, a process whereby worker-owners contribute to decisions about the design of the technologies that shape the condi-

tions, organization, and experience of their work and the products they create. A worker-led approach is juxtaposed to the status quo in the platform economy where gig workers' input is often limited to submission to pre-set terms of service (Rani et al. 2021, 20).

Against this top-down "governance architecture" (Rani et al. 2021, 20), several authors contend that co-operative ownership enables workers to exercise greater control over the technologies that mediate their labour and materially affect their livelihoods. The research suggests that including workers in co-operative platform development will increase the likelihood that a labour platform advances their interests (Johnston and Land-Kazlauskas 2018, 18), protects employment rights (McCann and Yazici 2018, 13), and remains transparent and accountable to workers (Rani et al. 2021, 88). Addressing policymakers seeking to tackle labour problems in the European gig economy, CECOP (2021), a co-op association, captures a perspective common in the literature when it positions the co-operative "as a model most adapted to develop technology at the service of communities, promoting good working conditions and transparent use of data" (7; see also: Zygmuntowski 2018, 181).

Four examples of the co-operative shaping of technology can be highlighted from the literature. First, worker-owned platform co-ops can decide not to allow clients to publicly rate individual workers on their apps (CECOP 2021, 7). By taking this decision, the Magic Care Cooperative, for instance, differentiates itself from competing cleaning services apps where ratings function as a key aspect of the "algorithmic management" of platform labour (Wood et al., cited in Ji 2020, 22). The ridesharing platform co-op Eva similarly does not enable public ratings, a decision which "relieves driver-user members of the mental burden and emotional labor involved in worrying about their rating" (Mannan 2020, 30). The absence of a public ratings feature removes, moreover, an affordance of platform interfaces that facilitates discriminatory behaviour and diminishes work opportunities for racialized workers (see: Schor and Eddy 2020, 15).

Second, whereas maximizing low-cost labour supply is a dominant gig economy strategy, many platform co-ops limit their labour supply in the name of safeguarding employment quality, including wage levels and work availability (Schor 2020; Schor and Eddy 2020, 25–26). Third, worker-owners at tech and digital communication co-ops have a say over who is taken on as clients (de Peuter et al. 2020; Hulyer 2018), a form of worker empowerment that mitigates the contentions that can arise when Big Tech companies compel employees to work for clients with whom they may have strong ethical disagreements (Schor and Eddy 2020, 23). The co-operative shaping of technology extends,

finally, to the creation of digital tools that support co-operative ownership and governance. One example, noted earlier, is Loomio, non-hierarchical decision-making software produced by the worker co-op of the same name, described by Jackson and Kuehn (2016) as a "platform on which new co-ops...can be conceived and built" (426).

Beyond providing examples of the co-operative shaping of technology, numerous contributors to the literature advance the argument that the co-operative model can bring fresh perspective to conversations about the "future of work." As Terrasi (2018) remarks, "the quality of jobs and the stability of future workers seem to be strongly linked to the issue of ownership and control," and, as such, there is a potentially "substantial role" for "cooperatives, in particular worker cooperatives" (23). Researchers suggest that hybrid worker-owner status can open alternative ways of navigating automation, for example. "In worker co-ops," writes Schneider (cited in Terrasi 2018), "rather than fearing how machines might take work away, workers can imagine how they could use those machines to make their lives easier" (23). This line of analysis is elaborated upon by McCann and Yazici (2018), who envisage co-operative ownership enabling futures of work where technology enriches rather than degrades livelihoods:

> It is possible that in a future world where platform co-operatives have proliferated widely, workers' control is able to mitigate job losses, so a worker on a platform could work fewer hours with no loss of pay because they also enjoy an equitable share of the profits. As the work becomes increasingly automated, the member shifts from getting most of their wages from work to receiving an income from being an owner of the company. This is radically different from the impact of automation on workers in traditional companies where automation leads to job losses and increased profits for the owners and investors of the company. (14)

As reflected in these accounts of the co-operative shaping of technology, co-operative ownership and governance brings the notion of economic democracy into discussions about the future of work where the tendency has been to assume that workers are victims rather than agents of the digital transformation of work. Ultimately, then, one of the main contentions that drives this literature is that enhanced worker control is necessary to democratize the digital economy. "For the benefits of technology to be shared widely," as Schneider (cited in Terrasi 2018) asserts, "the ownership of it must be shared, too" (23).

Limitations and Connections
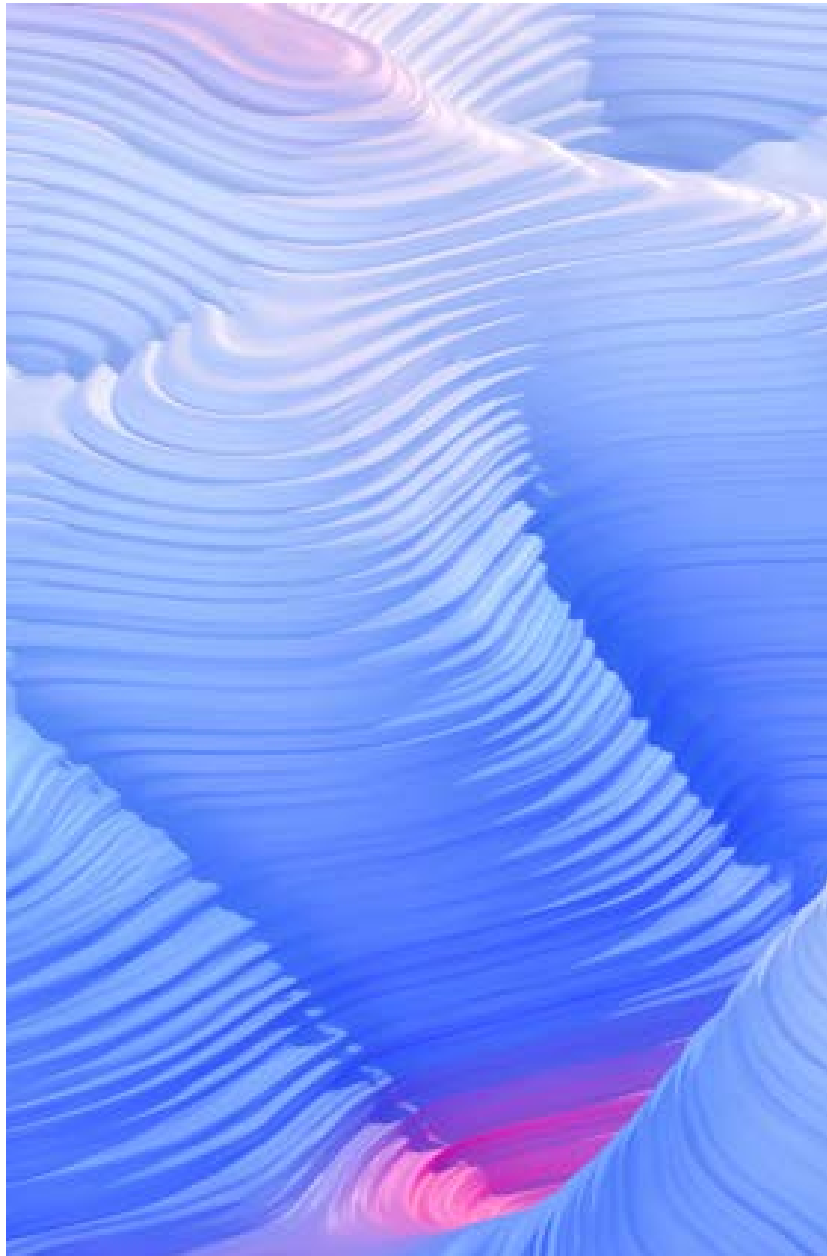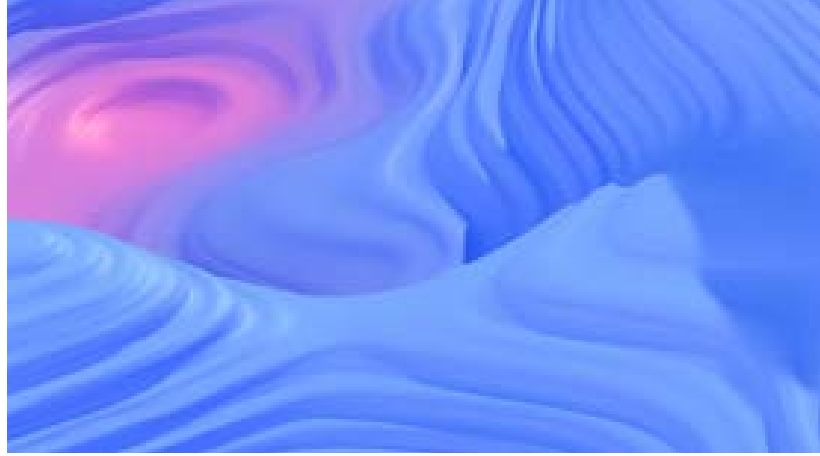
Co-operatives are not a panacea. They are entangled with the very economic paradigms, systems of exclusion, and cultures of work that many seek to transform. Co-ops are not, by themselves, a sufficient response to problems of work and inequality; they are one among a diversity of organizations and strategies necessary to improve work and livelihoods in the digital economy. The union co-op model and the solidarity economy are two concepts that potentially widen the political horizons of cooperativism in the digital age.

artwork by Juanjo McLittle

The reviewed literature presents evidence of co-operatives' potential to empower workers, mitigate precarity, advance economic justice, and unite dispersed workers in the digital economy. This sense of promise is qualified, however, by extensive discussion of the external challenges faced by co-operatives and the need for improved infrastructure to support co-operative development. Several authors also reflect on co-ops' political limits, with Sandoval (2020) cautioning against "a co-op fetishism that celebrates the co-operative form as necessarily progressive without considering its limitations" (812). Many authors stress that co-ops are not a "panacea" (Eum 2020, 93; Terrasi 2018, 26; Evans 2020, 4; Schwettmann 2020, 49, 51). Broadly, contributors identify two reasons why co-ops should not be viewed as a "silver bullet" (Evans 2020, 4) solution to problems of work in the digital economy, which we next outline.

Co-ops' structural embeddedness

First, co-ops remain embedded in the very economic paradigms, systemic inequalities, and troublesome work practices that many of these democratic businesses wish to transform. Like all businesses, digital economy co-ops operate within capitalist markets (Jackson and Kuehn 2016, 417; Lawrence, Pendleton, and Mahmoud 2019, 33; Sandoval 2020, 806; Scholz 2016a, 13; Taylor 2016, 234). For example, a tech co-op's software product might rely on digital infrastructure owned by conventional corporations (Jackson and Kuehn 2016, 423, 425), while a freelance design co-op might face pressure to lower its rates—to substandard levels—to remain competitive (Sandoval 2017, 123). More broadly, the literature acknowledges that co-ops vary widely in the extent to which they mimic or reject normative business and labour practices (see: Gurumurthy and Chami 2020; Pentzien 2020, 49; Schwettmann 2020, 51; Troncoso et al. 2020, 30).

In a critical account of platform cooperativism, Sandoval (2020) notes that co-ops confront tensions between their "political goals" and "economic pressures" (812). This tension is not unique to digital-sector co-ops. It is, as Hoover (2016) suggests, inherent to the co-op model, "as cooperatives sit squarely at the intersection of values and markets, organizing and business, community institution and economic engine" (108). The potential for tensions between a co-operative ethos and capitalist markets to reach a point of irreconcilability

is expressed in the "degeneration thesis," which posits that for a co-op to survive in a competitive economic system, its co-operative values will eventually be subordinated to market imperatives (Grayer 2020, 2; Sandoval 2020, 808; Zygmuntowski 2018, 185). In general, however, the literature tends to be skeptical of the myth of "cooperative purity" (Duda 2016, 184–185) and instead adopts the pragmatic view that worker co-ops must continually navigate tensions between commercial viability and co-operative principles.

The literature acknowledges that there are multiple ways co-ops "can be at risk of replicating some of the same problematic practices as corporations" (Evans 2020, 4; see also: Lawrence, Pendleton, and Mahmoud 2019, 13). Platform co-operativism's cloning strategy, for instance, runs the risk of keeping intact the gig economy's workforce-as-service model, with its "all-too-familiar colonial imaginary of pliable servants" (van Doorn 2017a, 907), coexisting with, rather than challenging, gendered and racialized divisions of labour.

Likewise, co-ops in the tech sector and digital creative industries are not immune to the social exclusions known to pervade these fields. As we've already noted, a survey of co-ops in the cultural and tech sectors found a lack of racial diversity among surveyed co-ops (de Peuter et al. 2020, 26). According to Anctil (2016), low pay can be a "blocking factor against more diversity" in tech co-ops, as it renders these workplaces inaccessible to members whose class position precludes them from accepting subpar wages. In addition, unhealthy work practices associated with creative industries, such as the expectation of a very high level of personal commitment to work, can not only exist in worker co-ops but also intensify within them: "Caught between the need to keep the co-op running, to generate a constant flow of income, to be supportive of co-workers, and wanting to contribute to wider political activism, co-operators risk stress, burnout and anxiety" (Sandoval 2017, 123).

Researchers urge co-operators to remain vigilant of social exclusion coexisting with ostensibly democratic co-operative projects. If platform co-ops, for example, favour members who are "entrepreneurial, innovative, flexible and tech-savvy," then, as Sandoval (2020) writes, "poverty, health problems, disabilities or caring responsibilities can easily become a hurdle [to participation]." Uncritical acceptance of an entrepreneurial ethos and normative startup culture, warns Sandoval, puts platform cooperativism at risk of "reproducing inequalities of race, class and gender as well as patterns of stress, anxiety, exhaustion and overwork" (813). Schor (2016) expresses some similar concerns based on her research on sharing economy projects, which she found were, despite their progressive aims, "plagued with status-seeking, subtle forms of social exclusion, and non-egalitarian behavior that threatened the core goals of founders and members" (39–40). Schor advises:

> If platform co-ops are to succeed without reproducing their own more privileged class, race, and gender homogeneousness, founders and early participants must be highly attuned to subtle social dynamics that valorize the practices and traits of dominant groups. Furthermore, they must stop those dynamics from developing. Practically speaking, achieving that probably means starting with a diverse group of founders and early participants—at the very least on the social dimensions of class, race, and gender. (41–42)

It is essential, co-op practitioners add, for co-ops to create policies for mitigating the reappearance of "structures of oppression we see across the [tech] industry" (Anctil 2016). With this in mind, some co-ops have designed member recruitment policies with the intent of averting the homogeneousness described by Schor (de Peuter et al. 2020, 15). In their survey of co-ops in creative industries, de Peuter et al. (2020) found that co-ops that characterize themselves as more diverse tend also to report that they reflect on the co-operative principles regularly, suggesting "the more a co-op engages the co-op principles, the more likely it is that the co-op will be representative and inclusive" (26).

While it is a marginal theme in the reviewed literature, the ecological commitments of co-ops in the digital economy are broached by some authors. Evans (2020), for example, asks whether co-ops "adequately reduce their carbon footprint" (4), and Schor and Eddy (2020) conclude that "platform cooperatives have little inherent advantage over for-profits on issues of ecological and carbon sustainability" (28–29). Schneider (2018) makes a critical intervention on these issues when he argues that "an honest platform cooperativism should extend its gaze beyond the platform economy itself to its material substrate—in particular, the human conditions surrounding the mineral extraction and assembly of hardware on which platforms depend." Schneider suggests that co-ops, by "building other co-ops into their supply chains, can help set high standards for sourcing and labor" (335; see also: Schwettmann 2020, 53).

Co-operatives as one strategy among many

A second reason why co-ops are not seen as a panacea is because the range, depth, and structural determinants of the problems of labour in the digital economy call for collective responses and institutional reform across multiple fronts. Co-ops are presented as one among a diversity of organizations and strategies needed to improve work and livelihoods and advance economic justice (see: Sandoval 2016, 68). Eum (2020) refers to an "integrated approach" (93) where co-ops exist alongside other approaches. In this vein, Johnston and

Land-Kazlauskas (2018) review different forms of collective organization in the gig economy, including unions, worker centres, online worker forums—and co-operatives. Confronting precarity and inequality is, as Boyle and Oakley (2018) write, "a massive social challenge and requires a wide variety of measures…and co-operative models have the potential to be an important part of this approach" (4). Recognizing platform co-ops' limited impact on labour markets to date, Schor and Eddy (2020) similarly conclude that "platform co-operativism can only be one component of a system-wide restructuring that is capable of producing economic democracy and justice" (28–29).

So, it is acknowledged that improving livelihoods in the digital economy requires interventions beyond the formation of individual co-ops. Authors address, for example, the importance of legislative and regulatory action, from updating and enforcing labour law to expanding access to social protections, including the right to join a union. The relevance of such regulatory reform is not limited to people working outside of co-operatives. The quality of employment available through a worker co-op will be shaped by the degree and kind of social protections attached to the employment relationship in the jurisdiction where a co-op operates (Terrasi 2018, 26). Moreover, the enforcement of existing labour regulations—employment misclassification, for example—is essential not only to improve the working conditions of non-co-op workers but also to enable co-ops that uphold labour standards to compete with incumbent platforms more fairly (Pentzien 2020, 25). Researchers contend, furthermore, that efforts to improve labour standards in the platform economy must be translocal. As Graham, Hjorth, and Lehdonvirta (2017) argue in their study of working conditions on digital labour platforms in the Global South, there is an urgent need to re-embed digital labour in local labour market norms. They propose that international clients compensate platform workers based on the "living wage in the worker's country of residence" (156).

Looking beyond co-operative strategies for improving workers' livelihoods, a key current in the literature reaffirms the importance of safeguarding and expanding universal social protections. For example, while researchers applaud how shared-services co-ops for self-employed workers meaningfully improve workers' material conditions, Eum (2019) cautions that co-operative approaches to protecting workers in nonstandard employment "should not relieve national governments of their responsibilities to find institutional solutions such as guaranteeing access to adequate social protection to all workers" (42). In a similar spirit, Gurumurthy and Chami (2020) capture a common policy stance in the literature when they write: "National laws need to be updated so that basic labor rights (adequate living wage, limit on working hours, safe and healthy working

conditions, collective bargaining, freedom from dataveillance) and access to social protection is guaranteed to all...workers" (see also: Sandoval 2020, 814).

Co-operative connections: union co-ops and the solidarity economy

The view that co-operatives are, in isolation, insufficient to protect workers' livelihoods in the digital economy dovetails with discussions of the need to make connections between worker co-ops and the labour movement, as well as to situate co-ops within broad-based movements for socio-economic transformation (see: Dellot and Wallace-Stephens 2017, 32; Duda 2016, 184–185; Grayer 2020, 78; Lawrence, Pendleton, and Mahmoud 2019, 29; Muldoon 2020, 79). Two key concepts arise in these discussions: the union co-op model and the solidarity economy.

Historically, there have been sharp tensions between the union and co-operative movements (Ji 2020, 25; Taylor 2016, 233). The literature reveals increasing efforts not only to challenge some of the assumptions underpinning these tensions but also to link these two traditions of worker organization (Bird et al. 2020; Conaty, Bird, and Ross 2018; Criscitiello 2016; Ji 2020). According to Bird et al. (2020), unions and co-ops have multiple affinities, including mutual belief in "joint decision-making, collective responsibility, solidarity between members, and fair distribution of rewards" (4). Beyond such shared commitments, authors argue that unions and co-ops reciprocally enrich one another. For Criscitiello (2016), bringing co-ops into union politics "moves unionized labor away from entrenched us-versus-them labor relations and lets workers take power directly" (148).

Linking unions and worker co-ops embeds co-operatives in a wider labour movement, integrates collective bargaining as an additional mechanism of worker governance in co-operative businesses, and gives co-op members access to the institutional resources and benefits available through larger unions. These are just some of the elements of the "union co-op" model (Conaty, Bird, and Ross 2016, 72). The literature introduces a small number of union co-ops in digital economy contexts. We have already mentioned two union co-ops: IndyCube, the UK-based coworking co-op that partnered with the professional workers' union, Community, leveraging union resources to provide support services to self-employed workers, from legal advice to invoice factoring (Conaty, Bird, and Ross 2018, 6); and NursesCan, the California-based platform co-op of licensed vocational nurses that is supported by the United Health Workers West union, and for union organizer Criscitiello (2016), shows the

promise of "organized labor and worker cooperatives team(ing) up in the 'gig economy'" (147).

The literature reveals varied visions of economic transformation among digital co-operative projects. Sandoval (2020) highlights the political heterogeneity of the platform cooperativism movement, spanning co-ops that seek a more ethical capitalism to co-ops that are outwardly anti-capitalist (802). Scholars also theorize these co-ops differently. For example, Schor and Eddy (2020) situate platform co-ops in a "pluralist economy" (5), whereas Chatterton and Pusey (2019) conceptualize emerging platform co-ops through the lens of a prefigurative politics of "postcapitalism" (see also: Muldoon 2020, 77–78; Pentzien 2020, 64). This spectrum of positions again reflects tensions intrinsic to the co-operative form. Just one of these tensions is that, on the one hand, co-ops exist to provide a specific benefit to a defined member group, and on the other hand, some co-ops and co-op advocates align co-ops with a more expansive politics of the "commons" (see: Papadimitropoulos 2021, 259).

Another concept that comes up in the reviewed literature on work and co-operatives in the digital economy is the solidarity economy, which bears on the attempt to situate co-ops within a constellation of organizations and movements committed to economic justice. The International Labour Organization defines the social and solidarity economy as "enterprises and organizations, in particular co-operatives, mutual benefit societies, associations, foundations and social enterprises, which specifically produce goods, services and knowledge while pursuing economic and social aims and fostering solidarity" (cited in Ridley-Duff and Bull 2021, 1437). The solidarity economy, Linares and Woolard (2021) add, "is a term used internationally to describe sustainable and equitable community-control of work, food, housing, and culture using a variety of organizational forms," whose core principles include "cooperation, participatory democracy, intersectional equity, sustainability, and pluralism" (7). Locating co-ops in the solidarity economy recalls the strategy of "cooperation beyond cooperatives," with co-ops and those that advocate for them "building alliances with likeminded movements," where just futures of work are understood to rest upon "the values of mutuality and solidarity" (Schwettmann 2020, 52).

Suggestions for Future Research

Based on the sample of literature reviewed for this report, several research needs and opportunities in the field of co-operatives, work, and the digital economy can be identified:

▦ There is a need for additional extended case studies of platform co-ops and tech co-ops. Ethnographic accounts as well as surveys of working conditions, membership composition, and governance practices of individual co-ops are necessary to assess more fully whether co-operatives effectively counter labour precarity, worker disempowerment, and social inequalities in the digital economy. In terms of platform co-ops specifically, there is a need for further research on care co-ops, which have tended to receive less research attention than mobility co-ops. In addition, case studies of platform co-ops in the cultural industries—streaming co-operatives, in particular—would widen the scope of scholarly research on the platformization of cultural production to include the prospects of cultural-worker owned and governed platforms. There is, moreover, a need for additional case studies of worker co-operatives in tech and digital creative industries, as these co-ops have received considerably less attention in the literature compared to multistakeholder co-ops in the platform economy. Finally, there is a need for further case research on unsuccessful digital co-operative projects. Studies of abandoned co-op experiments have the potential not only to generate insight into the challenges of co-operation but also to inform strategies for confronting these challenges more effectively.

▦ Understandably, research on co-operatives and work in the digital economy has a strong technological and contemporary orientation. This emergent area of inquiry has much to gain, however, from deepening its engagement with the wider and more established field of co-operative studies. Doing so has the potential to advance understanding of many of the core themes addressed in this review, from the challenges of co-operation to co-operative infrastructure. To provide just one example, a review of research on the formation of co-operative federations in the agricultural sector, as well as

on credit unions, could yield strategic insight for efforts to build and manage federated digital infrastructure for platform co-operatives.

There is a need for further critical research on the degree to which co-operatives in digital economy contexts advance and enact social justice. While there are some notable exceptions, gender- and race-based inequities receive limited attention in the reviewed literature. There is relatively little data, for instance, on the social composition of founders and members of platform co-ops, tech co-ops, and shared-services co-operatives of self-employed workers. There is, moreover, a need for further studies of the cultures of work within digital-sector co-ops in order to better understand how they counter or replicate patterns of social exclusion associated with tech work, the gig economy, and creative industries.

Co-operative development merits greater research attention. Compared to the extensive literature on union organizing in labour studies, there is a dearth of substantive engagement with theories, strategies, and practices of co-operative development in the reviewed literature. Just one entry point for future research on co-op development in the context of the digital economy is the emerging area of co-op-oriented tech incubators and accelerator programs. Studies of the formation, pedagogy, and institutional supporters of these programs, as well as the experiences and trajectories of the fledgling co-op projects that participate in them, could generate valuable insight into the possibilities and limitations of these nascent sites of co-operative business development in the digital economy. To increase the likelihood that research on co-operative development is useful to practitioners, such research ought to take seriously participatory action research and other community- and worker-based methodologies.

The reviewed literature broadly holds the view that the advancement of cooperativism in the digital economy depends on supportive co-operative infrastructure as well as the integration of co-operatives into wider movements for labour justice. As this review has shown, co-op advocates have forwarded several policy proposals for fostering cooperativism in the digital economy and beyond. This research could be extended, however, by considering strategies for *organizing* toward co-op-friendly public policy. In addition, given that co-operatives constitute one among a variety of strategies for improving work and livelihoods in the digital economy, additional research attention ought to be devoted to co-operation beyond co-operatives, including co-operative connections to the tech worker movement, racial justice movements, the union movement, climate justice, and progressive allies in government.

Policy Recommendations

A key feature of the research reviewed for this report is its attentiveness to policy implications. Several recommendations for policy changes to better support existing and new worker co-operatives in the digital economy are identified, including to:

- Enforce, preserve, and improve existing labour regulations to allow co-operatives that uphold labour standards to compete on a more "level playing field" with incumbent platforms in the gig economy (Pentzien 2020, 25, 73; Rani et al. 2021, 27).

- Expand access to social protections, including collective bargaining rights, to workers in nonstandard employment; and support the creation of shared-services co-operatives that assist freelancers and other self-employed workers in managing their careers and accessing social protections (Eum 2019, 43; Rani et al. 2021, 27).

- Raise public awareness of co-operatives by incorporating the worker co-operative model into the curricula of business, technology, and creative industries programs in colleges and universities; promote co-operative models at strategic sites of new business formation in the digital economy, including colleges and universities, incubators and accelerators, cultural hubs, and co-working spaces; and include co-operators in public discussions and government consultations about the future of work and the platform economy (Bigot-Verdier 2018; Borkin 2019, 37; Boyle and Oakley 2018, 10; Gorenflo 2015; ISED 2019, 2–3; Mayo 2019, 5; Moxom et al. 2021, 38; Terrasi 2018, 52).

- Improve the technical assistance available to worker co-operatives in the digital economy by: funding, leveraging, and expanding the co-operative development and mentorship capacities that already exist in co-operative associations; supporting the creation and operation of co-op-focused incubators and accelerator programs; and training publicly funded frontline business advisors in co-operative models (Bigot-Verdier 2018; Boyle and Oakley 2018, 10; Gorenflo 2015; Innovation, Science and Economic Development 2019, 12; Muldoon 2020, 82; Pentzien 2020, 73; Theodos, Edmonds, and Scally 2020, 15; Zygmuntowski 2018, 185–186).

░ Conduct a review of federal and provincial entrepreneurship and innovation funding programs to ensure that co-operatives are eligible and encouraged to apply; and promote co-operative conversion as a business succession strategy (ISED 2019, 2–3, 5; Pentzien 2020, 73).

░ Foster relationships between the co-operative sector and other solidarity economy organizations by: encouraging partnerships between worker co-ops and the union movement; inviting grassroots worker organizations to assist in incubating worker-owned platform co-ops in historically low-wage service sectors; and funding partnerships between university technology programs and low-wage worker organizations to identify opportunities to co-develop co-operative platforms (Dellot and Wallace-Stephens 2017, 33; Duda 2016, 185; Gorenflo 2015; Mayo 2019, 24; Muldoon 2020, 82).

░ Recognize worker co-operatives as a legitimate business form in public-facing information about government-supported business development and entrepreneurship programs; streamline the process of incorporating as a co-operative; and maintain a centralized online database of services and supports available to co-operatives in the digital economy (Bigot-Verdier 2018; ISED 2019, 2–3; Muldoon 2020, 82).

░ Building on the success of the UK "Community Shares" model and ongoing conversations surrounding the "Exit to Community" concept, develop co-operative financing frameworks that combine public funds, contributions from established co-ops, and social investors to provide meaningful startup capital to digital co-operative projects in a manner that safeguards co-operative principles; make public funds available to co-op projects that provide vital services to underserved populations; and foster an enabling environment for worker co-operative development by prioritizing co-ops in public procurement programs on the grounds of their beneficial social outcomes (Bigot-Verdier 2018; Borkin 2019, 36, 37; ISED 2019, 5; McCann and Yazici 2018, 4; Muldoon 2020, 83; Theodos, Edmonds, and Scally 2020, 8).

░ Support the formation of co-operative federations that develop and maintain shared digital infrastructure to make it more cost effective to start platform co-operatives (Dellot and Wallace-Stephens 2017, 37; McCann and Yazici 2018, 42–43).

List
of Sources

Alleyne, M., C. Canon, A. Evans, Y. Feng, N. Schneider, & M. Zepeda (2020). *Exit to community: A community primer.* Media Enterprise Design Lab. https://www.colorado.edu/lab/medlab/sites/default/files/attached-files/exittocommunityprimer-web.pdf

Anctil, G. (2016). Can coops revolutionize the tech industry? *Model View Culture*. March 16. https://modelviewculture.com/pieces/can-coops-revolutionize-the-tech-industry

Bartlett, R., & M. Deseriis (2016). Loomio and the problem of deliberation. *Open Democracy*. December 2. https://www.opendemocracy.net/en/digitaliberties/loomio-and-problem-of-deliberation

Bauwens, M., & V. Kostakis (2016). Why platform co-ops should be open co-ops. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 163–166). OR Books.

Bellini, A., & S. Lucciarini (2019). Not only riders: The uncertain boundaries of digital creative work as a frontier for emerging actors in interest representation. *The Open Journal of Sociopolitical Studies* 12(3): 845–870. http://siba-ese.unisalento.it/index.php/paco/article/view/21280/17983

Benkler, Y. (2016). The realism of cooperativism. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 91–95). OR Books.

Bigot-Verdier, A. (2018). 15 recommendations for platform coops in Quebec. *Ouishare*, July 12. https://medium.com/ouishare-connecting-the-collaborative-economy/15-recommandations-for-platform-coops-in-quebec-94dba073e22c

Bird, A., P. Conaty, M. McKeown, A. Mangan, C. Ross, & S. Taylor (2020). *Union-coops UK: A manifesto for decent work*. Union-Coops UK. https://unioncoopsuk.files.wordpress.com/2020/07/a-manifesto-for-decent-work-fw4.pdf

Blasimme, A., E. Vayena, & E. Hafen (2018). Democratizing health research through data cooperatives. *Philosophy & Technology* 31(3): 473–479. https://link.springer.com/article/10.1007/s13347-018-0320-8

Borkin, S. (2019). *Platform co-operatives: Solving the capital conundrum.* Co-operatives UK and Nesta Foundation. https://media.nesta.org.uk/documents/

Nesta_Platform_Report_AW_v4_3.pdf

Boudes, M. (2020). Labour transformation and institutional re-arrangement in France: A preliminary study of a business and employment cooperative. In B. Roelants, H. Eum, S. Esim, S. Novkovic & W. Katajamäki (Eds.), *Cooperatives and the world of work* (pp. 205–219). Routledge.

Boyle, D., & K. Oakley (2018). *Co-operatives in the creative industries.* Co-operatives UK. https://culturalworkersorganize.org/wp-content/uploads/2018/10/Cooperatives-and-Creative-Industries-Boyle-and-Oakley.pdf

Brodsky, G., & J. Mason (2021). Coops: The next generation. *The rework podcast*, March 16. https://www.rework.fm/coops-next-generation/

Bureau, M.-C., & A. Corsani (2017). The French business and employment cooperative: An autonomy factory? In E. Armano, A. Bove & A. Murgia (Eds.), *Mapping precariousness, labour insecurity, and uncertain livelihoods* (pp. 60–69). Routledge.

CECOP (2021). *Cooperatives fight for better working conditions in platform work.* https://cecop.coop/uploads/file/i7wZS1b8Z9CI3LdW9GB9pmwISKWw7qe-jilWQlYls.pdf

Chatterton, P., & A. Pusey (2019). Beyond capitalist enclosure, commodification and alienation: Postcapitalist praxis as commons, social production and useful doing. *Progress in Human Geography* 44(1): 27–48. https://doi.org/10.1177/0309132518821173

Coca, N. (2017). Innovative funding models for worker-owned platform cooperatives. *Grassroots Economic Organizing*, October 16. https://geo.coop/story/innovative-funding-models-worker-owned-platform-co-ops

Coca, N. (2019). See why this Akron alt-weekly publication is becoming a reader-owned media co-op. *Shareable*, December 23. https://www.shareable.net/see-why-this-akron-alt-weekly-publication-is-becoming-a-reader-owned-media-co-op/

Conaty, P., A. Bird, & P. Ross (2016). *Not alone: Trade union and co-operative solutions for self-employed workers.* Co-operatives UK. https://community-wealth.org/sites/clone.community-wealth.org/files/downloads/report-conaty-bird-ross_0.pdf

Conaty, P., A. Bird, & C. Ross (2018). *Working together: Trade union and co-operative innovations for precarious workers*. Co-operatives UK. https://cced-net-rcdec.ca/sites/ccednet-rcdec.ca/files/cuk_and_cc_-_working_together_final_print-quality.pdf

Co-operatives UK (2021). Unfound - Pioneering business support programme aims to create new ethical tech businesses. *Co-operatives UK*. March 22. https://www.uk.coop/news/pioneering-business-support-programme-aims-create-new-ethical-tech-businesses-unfound

Criscitiello, R. (2016). There is platform-power in a union. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 145–148). OR Books.

Dellot, B., & F. Wallace-Stephens (2017). *The self-organising self-employed: Empowering grassroots collaboration in the new economy*. RSA Action and Research Centre. https://www.thersa.org/globalassets/pdfs/reports/rsa_self-organising-self-employed-report.pdf

de Peuter, G. (2017). Coworking and co-operation: A union in the making. *Stir: The Magazine for the New Economy* 19, 12–15.

de Peuter, G., B. Dreyer, M. Sandoval, & A. Szarflarska (2020). *Sharing like we mean it: Working co-operatively in the cultural and tech sectors*. Cultural-Workers Organize. https://culturalworkersorganize.org/wp-content/uploads/2021/01/Sharing-Like-We-Mean-It-Web.pdf

Dickey, M.R. (2020). Inside the effort to turn startups into zebras, not unicorns. *Techcrunch*, March 5. https://techcrunch.com/2020/03/05/inside-the-effort-to-turn-startups-into-zebras-not-unicorns/

Dimond, J., & R. Galusca (2017). Tech worker-cooperatives as prefigurative intersectional feminism. https://depts.washington.edu/tatlab/intersectionalfutures/wp-content/uploads/2017/02/dimond-galusca-workshop-final.pdf

Dreyer, B., G. de Peuter, M. Sandoval, & A. Szarflarska (2020). *The co-operative alternative and the creative industries: A technical report on a survey of co-operatives in the culture and technology sectors in Canada, the United Kingdom, and the United States*. Cultural Workers Organize. https://culturalworkersorganize.org/wp-content/uploads/2020/12/The-Cooperative-Alternative-Technical-Report-Web.pdf

Duda, J. (2016). Beyond luxury cooperativism. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 182–186). OR Books.

Enochs, L. (2019). How co-op accelerators and incubators are supercharging a worker-owned economy. *Shareable*, July 9. https://www.shareable.net/how-co-op-accelerators-and-incubators-are-supercharging-a-worker-owned-economy/

Eum, H. (2019). *All for one: Response of worker-owned cooperatives to non-standard employment.* CECOP. https://cecop.coop/uploads/file/ExTB9Rdy73lZbXOzgF5Y7eYLjww28I6r0Hs0PTXH.pdf

Eum, H. (2020). Work and employment in the informal economy and new forms of work: How can the cooperative model be an answer. In B. Roelants,H. Eum, S. Esim, S. Novkovic & W. Katajamäki (Eds.), *Cooperatives and the world of work* (pp. 90–106). Routledge.

Evans, A. (2020). *Redefining the concept of ethical business.* Institute for the Cooperative Digital Economy, Platform Cooperativism Consortium. https://ia801807.us.archive.org/29/items/amelia-evans-single-web/Amelia%20Evans_single_web.pdf

Gandini, A., & A. Cossu (2021). The third wave of coworking: 'neo-corporate' model versus 'resilient' practice. *European Journal of Cultural Studies* 24(2): 430–447. https://doi.org/10.1177/1367549419886060

Gorenflo, N. (2015). How platform coops can beat death stars like Uber to create a real sharing economy. *Shareable*, November 4. https://www.shareable.net/how-platform-coops-can-beat-death-stars-like-uber-to-create-a-real-sharing-economy/

Graham, M., I. Hjorth, & V. Lehdonvirta (2017). Digital labour and development: Impacts of global digital labour platforms and the gig economy on worker livelihoods. *Transfer* 23(2): 135–162. https://doi.org/10.1177/1024258916687250

Grayer, S.B. (2020). *Stocksy United: A case study of co-operation in the cultural industries* [Master's thesis, Simon Fraser University]. https://summit.sfu.ca/item/19708

Gurumurthy, A., & Chami, N. (2020). *A 3-point agenda for platform workers; as if the south matters: Wresting power back from platform capitalism.* BotPopuli,

May 1. https://botpopuli.net/platform-gig-work-global-south-labor-digital-economy-covid

Hadfield, M. (2021). New business accelerator launched for UK platform co-ops. *Co-op News*, March 22. https://www.thenews.coop/153612/topic/development/new-funding-accelerator-launched-for-uk-platform-co-ops/

Hall, W. (2021). *Exploring legal mechanisms for data stewardship.* Ada Lovelace Institute, March 4. https://www.adalovelaceinstitute.org/report/legal-mechanisms-data-stewardship/

Herrera, L., B. Justie, T. Koonse, & S. Waheed (2020). *Worker ownership, COVID-19, and the future of the gig economy*. UCLA Labor Center. https://escholarship.org/content/qt3h60d754/qt3h60d754_noSplash_26741adf-3243c6fe2196f80202a2e4a5.pdf?t=qiv0pb

Hoover, M. (2016). What we mean when we say "cooperative." In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 108–112). OR Books.

Hulyer, J. (2018). Co-ops and blockchain can change how startups do business. *Wired*, May 18. https://www.wired.co.uk/article/the-tech-cooperatives-changing-the-way-startups-do-business

Innovation, Science and Economic Development Canada (ISED) (2019). *What we heard: Motion-100 consultations*. https://www.ic.gc.ca/eic/site/106.nsf/vwapj/Motion-100-March-7_e.pdf/$FILE/Motion-100-March-7_e.pdf

Jackson, S., & K.M. Kuehn (2016). Open source, social activism and "necessary trade-offs" in the digital enclosure: A case study of platform co-operative, Loomio.org. *TripleC* 14(2): 413–427. https://www.triple-c.at/index.php/tripleC/article/download/764/880

Jang, J. (2017). The emergence of freelancer cooperatives in South Korea. *Annals of Public and Cooperative Economics* 88(1): 75–89. https://doi.org/10.1111/apce.12143

Ji, M. (2020). *Platform worker organizing*. The Institute for Digital Cooperative Economy, Platform Cooperative Consortium. https://ia801805.us.archive.org/30/items/minsun-ji-single-web/Minsun%20Ji_single_web.pdf

Johnston, H., & C. Land-Kazlauskas (2018). *Organizing on-demand: Represen-

tation, voice, and collective bargaining in the gig economy. Conditions of Work and Employment Series 94, 1–44. International Labour Office. `https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/publication/wcms_624286.pdf`

Lawrence, M., A. Pendleton, & S. Mahmoud (2019). *Co-operatives unleashed: Doubling the size of the UK's co-operative sector.* New Economics Foundation. `https://neweconomics.org/uploads/files/co-ops-unleashed.pdf`

Linares, N., & C. Woolard (2021). *Solidarity not charity: A rapid report.* Grantmakers in the Arts. `https://art.coop/#report`

Mannan, M. (2020). *Everything old is new again*. Institute for the Cooperative Digital Economy. `https://archive.org/download/morshed-mannan-single-web/Morshed%20Mannan_single_web.pdf`

Mayo, E. (2019). *Digital democracy? Options for the International Cooperative Alliance to advance platform coops.* International Co-operative Alliance. `https://www.uk.coop/sites/default/files/2020-11/annex_1_-_digital_democracy_discussion_paper_-_en.pdf`

McCann, D., & E. Yazici (2018). *Disrupting together: The challenges (and opportunities) for platform co-operatives*. New Economics Foundation. `https://neweconomics.org/uploads/files/Disrupting-Together.pdf`

Metts, M. (2016). Meet your friendly neighbourhood tech co-op. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 204–207*)*. OR Books.

Micheli, M., M. Ponti, M. Craglia, & A.B. Suman (2020). Emerging models of data governance in the age of datafication. *Big Data & Society* 7(2): 1–15. `https://journals.sagepub.com/doi/full/10.1177/2053951720948087`

Morozov, E. (2016). Data populists must seize our information – for the benefit of us all. *The Guardian,* December 4. `https://www.theguardian.com/commentisfree/2016/dec/04/data-populists-must-seize-information-for-benefit-of-all-evgeny-morozov`

Moxom, J. et al. (2021). *Young people and cooperatives: A perfect match? Global thematic research report*. International Co-operative Alliance. `https://www.ica.coop/sites/default/files/news-item-attachments/coops4devyoungpeoplereport-267264990.pdf`

Muldoon, J. (2020). The co-operativist challenge to the platform economy. In J. Muldoon & W. Stronge (Eds.), *Platforming equality: Policy challenges for the digital economy* (pp. 73–84). https://autonomy.work/wp-content/uploads/2020/09/platforming-equality-V3.pdf

Murgia, A., & S. de Heusch (2020). It started with the arts and now it concerns all sectors: The case of Smart, a cooperative of "salaried autonomous workers." In S. Luckman & S. Taylor (Eds.), *Pathways into creative working lives* (pp. 211–230). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-38246-9_12

Nicoli, M., & L. Paltrinieri (2019). Platform cooperativism: Some notes on the becoming "common" of the firm. *South Atlantic Quarterly* 118(4): 801–819. https://doi.org/10.1215/00382876-7825624

Novkovic, S. (2020). Multi-stakeholder cooperatives as a means for job creation and social transformation. In B. Roelants, H. Eum, S. Esim, S. Novkovic & W. Katajamäki (Eds.), *Cooperatives and the world of work* (pp. 220–233). Routledge.

Orsi, J. (2016). Three essential building blocks for your platform cooperative. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 96–101). OR Books.

Papadimitropoulos, E. (2021). Platform capitalism, platform cooperativism, and the commons. *Rethinking Marxism* 33(2): 246–262. https://doi.org/10.1080/08935696.2021.1893108

Pazaitis, A., V. Kostakis, & M. Bauwens (2017). Digital economy and the rise of open cooperativism: The case of the Enspiral Network. *Transfer* 23(2): 1–16. https://doi.org/10.1177/1024258916683865

Pentland, A., & T. Hardjono (2020). Empowering innovation through data cooperatives. In A. Pentland, A. Lipton & T. Hardjono (Eds.), *Building the New Economy*. MIT Press Works in Progress. https://doi.org/10.21428/ba67f642.0499afe0

Pentzien, J. (2020). *The politics of platform cooperativism.* Institute for the Cooperative Digital Economy, Platform Cooperativism Consortium. https://ia801701.us.archive.org/10/items/jonas-pentzien-single-web_202012/Jonas%20Pentzien_single_web.pdf

Puusa, A., & K. Hokkila (2020). Cooperatives of independent workers in Finland: A unique forum for self-employment. In B. Roelants, H. Eum, S. Esim, S. Novkovic & W. Katajamäki (Eds.), *Cooperatives and the world of work* (pp. 188–204). Routledge.

Rani, U., R.K. Dhir, M. Furrer, N. Gobel, A.C. McManus, S. Cooney, & A. Moraiti (2021). *World employment and social outlook: The role of digital labour platforms in transforming the world of work.* International Labour Office. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_771749.pdf

Ridley-Duff, R., & M. Bull (2021). Common pool resource institutions: The rise of internet platforms in the social solidarity economy. *Business Strategy and the Environment* 30(3): 1436–1453. https://doi.org/10.1002/bse.2707

Sandoval, M. (2016). Fighting precarity with co-operation? Worker co-operatives in the cultural sector. *New Formations* 88, 51–68. https://openaccess.city.ac.uk/id/eprint/14859/

Sandoval, M. (2017). From passionate labour to compassionate work: Cultural co-ops, do what you love and social change. *European Journal of Cultural Studies* 21(2): 113–129. https://doi.org/10.1177/1367549417719011

Sandoval, M. (2020). Entrepreneurial activism? Platform cooperativism between subversion and co-optation. *Critical Sociology* 46(6): 801–817. https://doi.org/10.1177/0896920519870577

Schneider, N. (2016a). Here's my plan to save Twitter: Let's buy it. *The Guardian*, September 29. https://www.theguardian.com/commentisfree/2016/sep/29/save-twitter-buy-platform-shared-ownership

Schneider, N. (2016b). The meaning of words. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 14–19). OR Books.

Schneider, N. (2018). An internet of ownership: Democratic design for the online economy. *The Sociological Review Monographs* 66(2): 320–340. https://doi.org/10.1177/0038026118758533

Schneider, N. (2020a). Exit to community. *Noema*, August 27. https://www.noemamag.com/exit-to-community/

Schneider, N. (2020b). Digital Kelsoism: Employee stock ownership as a pat-

tern for the online economy. In D. Poehler (Ed.), *Beyond 2020: Reimagining the governance of work and employment in a rapidly changing world* (pp. 1-29). Cornell University Press. https://mediarxiv.org/m82zx/

Scholz, T. (2016a). *Platform cooperativism: Challenging the corporate sharing economy.* Rosa Luxemburg Stiftung, New York Office. https://rosalux.nyc/wp-content/uploads/2020/11/RLS-NYC_platformcoop.pdf

Scholz, T. (2016b). How platform cooperativism can unleash the network. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 20-26). OR Books.

Scholz, T. (2017). The rise of platform cooperativism. In *Uberworked and underpaid: How workers are disrupting the digital economy*, 155-192. John Wiley & Sons.

Scholz, T., D. O'Brien, & J. Spicer (2021). *Can cooperatives build worker power? Give platform co-ops a seat at the policy table*. Public Seminar, March 11. https://publicseminar.org/2021/03/can-cooperatives-build-worker-power/

Scholz, T., & N. Schneider (2016). What this is and isn't about. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 11-13). OR Books.

Schor, J.B. (2016). Old exclusions in emergent spaces. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 38-42). OR Books.

Schor, J.B. (2020). Gig worker employment fights like those in California pit flexibility against livable wage – but "platform cooperatives" could ensure workers get both. *The Conversation*, October 29. https://theconversation.com/gig-worker-employment-fights-like-those-in-california-pit-flexibility-against-a-livable-wage-but-platform-cooperatives-could-ensure-workers-get-both-145609

Schor, J.B., & S. Eddy (2020). The just and democratic platform? Possibilities of platform cooperativism. Workshop on Political Economy and Justice, Edmond J. Safra Center for Ethics, Harvard University. https://www.bc.edu/content/dam/bcl/schools/mcas/sociology/pdf/connected/Platform%20Possibilities%20March%201%202020.pdf

Schwettmann, J. (2020). Cooperatives and the future of work. In B. Roelants, H. Eum, S. Esim, S. Novkovic & W. Katajamäki (Eds.), *Cooperatives and the world of work* (pp. 34–56). Routledge.

Sheffield, H. (2018). Tech co-operatives are leaving the startup rat race behind. *Wired*, June 14. https://www.wired.co.uk/article/cotech-tech-cooperatives-blake-house-outlandish

Spicer, J.S. (2020). Worker and community ownership as an economic development strategy: Innovation rebirth or tired retread of a failed idea? *Economic Development Quarterly* 34(4): 325–342. https://doi.org/10.1177/0891242420941597

Spitzberg, D. (2019). *Mapping the cooperative digital economy.* Platform Cooperativism Consortium, December 19. https://platform.coop/blog/mapping-the-cooperative-digital-economy/

Spitzberg, D. (2021). The slow demise of Loconomics. *Stir to Action* 33, 16–19.

Taylor, A. (2016). Non-cooperativism. In T. Scholz & N. Schneider (Eds.), *Ours to hack and to own: The rise of platform cooperativism, A new vision for the future of work and a fairer internet* (pp. 233–237). OR Books.

Terrasi, E. (2018). *Global study on youth cooperative entrepreneurship: With a focus on worker, social and independent producers/workers cooperatives.* CICOPA. June. https://www.cicopa.coop/wp-content/uploads/2018/06/CICOPA_YouthReport_2018.pdf

The Next System Project (2019). *Patterns for cooperative networks and associations.* April 24. https://thenextsystem.org/learn/stories/patterns-cooperative-networks-and-associations

Theodos, B., L. Edmonds, & C.P. Scally (2020). *Policy strategies to build a more inclusive economy with cooperatives.* The Urban Institute. October. https://ncbaclusa.coop/content/uploads/2020/10/Policy-Strategies-for-an-Inclusive-Economy-Oct-2020.pdf

Troncoso, S., & A.M. Utratel (2019). *If I only had a heart: A DisCO manifesto: Value sovereignty, care work, commons, and distributed cooperative organizations.* DisCO.coop, the Transnational Institute, and Guerilla Media Collective. https://disco.coop/wp-content/uploads/2019/11/DisCO_Manifesto-v.1.pdf

Troncoso, S., A.M. Utratel, L. Foster, & J. Burrows et al. (2020). *Groove is in*

the heart: The DisCO elements: Commons care and governance for distributed cooperative organizations. DisCO.coop in collaboration with Geeks Without Bounds, Grant for the Web, Mondragon University, Platform Cooperativism Consortium, FundAction, the Transnational Institute, and Guerilla Media Collective. https://disco.coop/wp-content/uploads/2020/12/DisCO_Elements_v1-3.pdf

van Doorn, N. (2017a). Platform labor: On the gendered and racialized exploitation of low-income service work in the "on-demand" economy. *Information, Communication & Society* 20(6): 898–914. https://doi.org/10.1080/1369118X.2017.1294194

van Doorn, N. (2017b). *Platform cooperativism and the problem of the outside.* Culture Digitally, February 7. https://culturedigitally.org/2017/02/platform-cooperativism-and-the-problem-of-the-outside/

Xhauflair, V., B. Huybrechts, & F. Pichault (2018). How can new players establish themselves in highly institutionalized labour markets? A Belgian case study in the area of project-based work. *British Journal of Industrial Relations* 56(2): 370–394. https://doi.org/10.1111/bjir.12281

Zygmuntowski, J.J. (2018). Commoning in the digital era: Platform cooperativism as a counter to cognitive capitalism. *The Central European Journal of Social Sciences and Humanities* 27(1): 168–192. http://cejsh.icm.edu.pl/cejsh/element/bwmetal.element.ojs-doi-10_14746_prt_2018_1_7

Appendix 1
Digital Co-ops in Canada

This appendix provides a list of just some of the various examples of digital-sector co-operatives in Canada. This list is followed by snapshots of a small sample of these co-ops.

Artse United
Platform co-op Toronto,ON

Arts management and business tools for independent creators and small producers in the arts and culture sector

Brave Technology Co-op
Multistakeholder co-op Vancouver, BC

"Tools to detect and respond to overdose"

Caravan
Worker co-op Montreal,QC

Web and mobile app development

Coloc Studio Créatif Co-op
Worker co-op Gatineau,QC

Web development and graphic design

Coopérative Belvédère
Multistakeholder co-op Montreal,QC

Communication agency

CRAFT
Platform co-op Toronto,ON

Online art and design marketplace

Eva
Multistakeholder co-op Montreal, QC

Rideshare co-op

Gamma Space
Not-for-profit distributed co-op Toronto,ON

Coworking space for digital media and game developers

Hypha Worker Co-operative
Worker co-op Toronto,ON

Technology design and development and infrastructure management

KO_OP
Worker co-op Montreal,QC
Digital game studio

MOSS Digital
Worker co-op London,ON
Website development, mobile applications, and content management systems

New Feeling
Multistakeholder co-op Canada
Music journalism

Radish
Platform co-op Montreal,QC
Food delivery

Shift Delivery
Worker co-op Vancouver,BC
Last mile delivery and advertising service

Stocksy United
Multistakeholder co-op Victoria, BC
Stock photography and video

Tech Support Cooperative
Worker co-op Toronto, ON and US
Software development and IT support

Weaver Design & Storytelling Co-operative
Worker co-op Victoria, BC
Creative design, digital strategy, and web development

Coopérative Belvédère

Coopérative Belvédère, a communications agency, is a solidarity co-op with six worker-members and more than 100 user-members.[1] In business since 2014, this Montreal-based co-op offers services in graphic design and web development as well as branding and communication strategy. Adopting a unique non-profit co-op structure that brings together workers and clients as members, Coopérative Belvédère is committed to advancing workplace democracy, the social economy, and sustainable development while providing fair-priced creative services to customers.

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1   Coopérative Belvédère (2022), À propos, https://belvedere.coop/a-propos/.

CRAFT

CRAFT is a platform co-operative in development at OCAD University in Toronto. Responding to the precarious livelihoods that are familiar to creative workers, CRAFT will provide artists and designers with an online marketplace for the promotion and sale of their work. Through CRAFT, artists will also have access to "creative entrepreneurship training."[1] Supported by a $1.7 million investment from the Future Skills Centre, CRAFT aims to advance "more equitable economic models," which, says OCAD U president Ana Serrano, "is more important than ever as the cultural sector reshapes itself post-COVID."[2] By adopting a platform co-op structure, CRAFT is envisaged as a "democratic business collective that empowers, instead of exploits, creatives."[3]

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1 Future Skills Centre (2022), Craft, https://fsc-ccf.ca/projects/craft/.

2 OCAD University (2021, April 7), OCAD U receives $1.7 million to launch Canada's first sales and upskilling co-op platform, https://www.ocadu.ca/news/ocad-u-receives-17-million-launch-canadas-first-sales-and-upskilling-co-op-platform.

3 Future Skills Centre (2022).

Eva

Eva, a multistakeholder co-op, is a Montreal-based ride-share and on-demand delivery platform that launched its app in 2019 with ambitions to become a global franchise of local mobility co-ops. Eva has received funding from Investissement Québec, an investment arm of the Quebec government, and the Caisse d'économie solidaire Desjardins, a credit union, among other sources. Eva charges a lower transaction fee than its competitors, passing savings on to drivers and riders. Says Eva co-founder Dardan Isufi: "We believe we're building great tools for driver communities, local taxi companies, (and) local delivery companies to literally own their own means of production and sustain their own economy, instead of having to work for a dehumanizing platform which takes 25% commission or even more."[1] Connecting rider-members with driver-members, Eva currently has more than 3,000 registered drivers.[2]

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1 Democracy at Work (2021, May 4), All things co-op: The Eva cooperative (video), *YouTube.com*, https://www.youtube.com/watch?v=_V7wThsAUs4.

2 Newswire (2021, December 17), Eva, the Montreal startup, raises $1.2M to expand its delivery software and franchise it across Canada, *Newswire.ca*, https://www.newswire.ca/news-releases/eva-the-montreal-startup-raises-1-2m-to-expand-its-delivery-software-and-franchise-it-across-canada-838740355.html.

Hypha

Hypha is a Toronto-based not-for-profit worker co-operative offering services such as technology design, strategy and coaching, and infrastructure management.[1] Incorporated in 2019, Hypha has seven member-workers with experience as technologists and community organizers. Emerging in part from Civic Tech Toronto, a weekly meet-up, Hypha's founders wanted to maintain the values of civic tech, which puts community-making before technology, while deriving a livelihood from their collaboration.[2] In addition to practicing workplace democracy and working with mission-driven organizations, Hypha, says member-owner Dawn Walker, strives to contribute to "building the solidarity economy."[3]

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1 Hypha Worker Cooperative (n.d.), We help organizations and their communities redesign their relationships with digital technology, https://hypha.coop.

2 K. Love (2020, June 21), Hypha worker co-operative seeks to build bridges, Canadian Worker Co-operative Federation, https://canadianworker. coop/hypha-worker-co-operative-seeks-to-build-bridges/.

3 Cited in Love (2020).

KO_OP

KO_OP is a Montreal-based worker-owned game development studio. Co-owned by 10 games workers, KO_OP is behind digital games such as *GNOG* and *Winding Worlds*. Founded in 2012, KO_OP has a flat pay structure, and each worker-owner has an equal say in shaping the business. Says KO_OP co-founder Saleem Dabbous: "This studio...exists to support the people who are part of it, not the other way around.... KO_OP is there for us to take advantage of whatever resources it awards us, be it healthcare, or this opportunity to create a certain piece of art that we really want to see out there in the world."[1]

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1 Cited in P. Klepek (2019, March 12), Giving workers equal power isn't radical. This studio's done it for years, *Vice.com*, https://www.vice.com/en/article/8xybb4/giving-workers-equal-power-isnt-radical-this-studios-done-it-for-years.

Radish

Radish is a Montreal-based online food ordering and delivery platform set up as a solidarity co-operative. Co-founded by Mansib Rahman and Qudsia Saadat, Radish offers an alternative to the unfavourable terms set by incumbent platforms like Uber Eats, not only for deliverers who face poor working conditions but also for small restaurants that operate on lean margins. "With the other platforms," says Saadat, "the users, which include the restaurants, drivers and consumers, are not included in the decision-making process."[1] Radish, which launched in 2020, uses a co-operative model to enable drivers, restauranteurs, and customers to co-own and co-govern a delivery platform for their mutual benefit. "Everyone involved is represented. They get a right to vote in the direction (of the business) and receive returns of the profits. We wanted to bring back ownership to the restaurants and to the people who are behind them," says Saadat.[2] Referring to the tensions that can arise between member groups in multistakeholder co-ops, Rahman says: "Our view is that you can't avoid conflict. Unlike giant companies that try to have no discussion at all, we want to increase transparency and put people on a level playing field."[3]

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1 Cited in A. Bah (2020, October 3), Meet Qudsia: Co-founder of Radish, a food delivery service with a different approach, *Montreal Flavours*, https://montrealflavours.wordpress.com/2020/10/23/meet-qudsia-co-founder-of-radish-a-food-delivery-service-with-a-different-approach/.

2 Cited in Bah (2020).

3 Cited in R. Hayes (2021, January 7). The gig is up. *This*, https://this.org/2021/01/07/the-gig-is-up/.

Stocksy United

Stocksy United, headquartered in Victoria, BC, is a digital stock photography and video co-operative. Among the largest platform co-ops, Stocksy has some 1,400 artist-members across 70 countries.[1] Founded in 2012 to create an alternative to freelancer exploitation in the stock industry, Stocksy describes itself as an "(a)rtist-owned stock media company committed to providing an equitable platform that supports the creative class' pursuit of meaningful work."[2] As a multistakeholder co-op, artists, staff, and founders are included in the ownership and governance structure. Stocksy's payment model provides creators with royalties of 50–75%, which is significantly higher than its competitors' rates.[3] Member-owners also share in the annual surplus generated by the co-operative, and Stocksy has been distributing dividends to member-owners since its first year of operations.[4] By early 2021, Stocksy had "paid out over $40 million to its members."[5] Artist-members also have channels to participate meaningfully in decisions that shape the business through elected representatives, an online forum, and general membership meetings.

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1 R. Hayes (2021, January 7). The gig is up. *This*, https://this.org/2021/01/07/the-gig-is-up/.

2 Stocksy United (n.d.), *Tweets* [Twitter profile], https://twitter.com/StocksyUnited.

3 Hayes (2021).

4 O. Sylvester-Bradley and B. Wettlaufer (2017, February 10), Creating a financial model that benefits the many over the few: A Q&A with Brianna Wettlaufer, CEO of Stocksy, *Open Democracy*, https://www.opendemocracy.net/en/creating-financial-model-that-benefits-many-over-few-qa-with-brianna-wettla/.

5 Hayes (2021).

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Design

Tara Campbell & Tieni Meninato

Images

Stocksy United
stocksy.com

Cover art

Goce Ilievski

Copy editor

Timothy Pearson

Acknowledgments

Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada

Co-operatives, Work, and the Digital Economy
A Knowledge Synthesis Report

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