JEOD
JOURNAL OF ENTREPRENEURIAL AND ORGANIZATIONAL DIVERSITY

Volume 10, Issue 2 (2021) 29-53 | Published online 31 January 2022

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Scaling Co-operatives Through a Multi-Stakeholder Network: A Case Study in the Colorado Solar Energy Industry

ABSTRACT

A new generation of co-operative businesses has struggled to identify pathways to transformative scale in their industries. This case study analyses a multi-stakeholder network of single-stakeholder co-ops that emerged in the Colorado solar energy industry that could be a replicable model for scaling co-operative businesses despite challenges of capital access. To understand how one set of entrepreneurs created national impact through networked co-ops, interviews were conducted with current and former employees of the businesses in the network: Namasté Solar (a worker co-op), Amicus Solar (a purchasing co-op), Amicus O&M (a shared-services co-op), Clean Energy Credit Union (a consumer-owned financial institution), and Kachuwa Impact Fund (a co-op of investors). Through these distinct yet interlocking entities, the network can serve a diverse set of stakeholders while retaining focus at the level of each business.

KEY-WORDS

CO-OPERATIVES, BUSINESS NETWORKS, SOLAR ENERGY, SOCIAL ENTREPRENEURSHIP, SUSTAINABILITY

Acknowledgments
The authors wish to offer special thanks and appreciation to interview participants: Blake Jones, Wes Kennedy, Stephen Irvin, Amanda Bybee, Jason Sharpe, Jason Wiener, Matt Herman, Angela Burke, Jenna Stadsvold, Juan Blohm, Alyssa Soares, Davis Fogerty, Briana Morris, and Daniel Fireside, who actively collaborated in the research. Karen Miner, Sonja Novkovic, and Keith Taylor generously provided feedback on earlier drafts, along with helpful comments from anonymous reviewers.

JEL Classification: P13, J54, L14, G3, Q01 | **DOI:** 10.5947/jeod.2021.008

1. Introduction

There have been mounting efforts in recent decades to strengthen the relationship between entrepreneurial innovations and social goals, trading shareholder primacy for widely shared benefits and environmental sustainability. Perhaps no signal has been so widely heard, particularly in the United States, as the Business Roundtable's (2019) turn from the doctrine of shareholder primacy to a vision for companies that "benefit all stakeholders—customers, employees, suppliers, and communities and shareholders". This new standard invites companies to embrace such notions associated with social entrepreneurship as a "triple bottom line" (Elkington, 2018). However laudable these initiatives might be, they are late to the party—and perhaps insufficiently attired.

Co-operative business represents a much longer tradition seeking to integrate entrepreneurship with social benefit, dating back in its modern form to the mid-nineteenth century (Mayo, 2017; Schneider, 2018). Co-operative enterprises are owned and governed by their members—their direct participants, rather than a small set of beneficiaries or investors trading shares on the market. Co-operatives appear in nearly every country, with diverse legal arrangements but a shared sense of global identity, covering a wide range of industries and organisational designs (International Co-operative Alliance, n.d.). While many co-ops are small and local in scope, the model is widespread in agriculture and consumer finance, and it has produced such global brands as the Associated Press, Fonterra, Groupe Crédit Agricole, and Visa. Co-operatives and other forms of broad-based ownership have demonstrated numerous advantages such as lower rates of failure, resilience in economic hardship, greater firm productivity, and protection for otherwise exploitable workers (Albæk and Schultz, 1998; Molk, 2014; Pérotin, 2016; Blasi, Kruse and Freeman, 2018). Studies have also highlighted co-operatives' benefits for surrounding communities (Menzani and Zamagni, 2010; Zitcer and Dilworth, 2019; Taylor, 2021). Yet co-operatives account for only a small percentage of the GDP in most economies, such businesses occur in economic and regulatory environments that inhibit their growth (Spicer, 2021).

Co-operatives have faced barriers to growth such as lack of awareness, inadequate public policy, limit intra-firm coordination, and especially a widespread lack of access to financial capital (Molk, 2014; Vaheesan and Schneider, 2019; Spicer, 2021). Their commitment to member control means co-operatives often cannot deliver the returns that investors expect from speculative investments. Historically, co-ops have arisen in capital-poor environments and other cases of "missing markets" (Hueth, 2014). Financial capital today is available in such excess to profit-maximising firms that co-operatives cannot compete with investor-owned businesses' potential capacity. Through such mechanisms as venture capital and private equity, capital markets impose demands incompatible with co-operative values. Investor ownership also exacerbates the consolidation of market power, further edging out more community-based business structures (Vaheesan and Schneider, 2019). Mission-aligned, co-operative-compatible investment funds, targeting a balance of financial and social returns, are still scarce and require investors' commitment to ensuring social impact is prioritised as the business grows (Rose and Kelly, 2021). As the urgency mounts for addressing such crises as climate change, wealth inequality, and political polarisation, bringing greater scale to co-operative business represents an under-utilised opportunity.

The most common understanding of business scale relies on metrics that assume investor ownership, such as market capitalisation and turnover within a given corporate entity. Co-operatives are not antithetical to growth, yet "the way they grow and their key opportunities are different" (Bérubé, Grant and Mansour, 2012: 4). Rather than individual vertical growth, co-operatives often coordinate their way to scale among diverse entities (Novkovic and Holm, 2012), contractual frameworks, informal bonds, innovative hybrid structures, and policy-supported arrangements, strongly oriented by their cultural, political and economic context (Spicer, 2021).

How can co-operatives scale their impact, even with limited capital access? How can entrepreneurs create transformative change in their industries without undermining small businesses and the communities they support? This case study analyses a multi-stakeholder network of single-stakeholder co-ops that emerged in the Colorado solar energy industry—the unplanned outcome from entrepreneurial spin-offs, co-op conversions, informal social bonds, and an ad hoc contractual framework. Using spin-offs from an original business (Zevi et al., 2011: 55; Ellerman, 2015), this opportunistic network evolved a structure to tackle capital-access challenges and boost the development of transformative, values-centered co-operatives.

Given the constraints they face, co-operatives have historically developed several strategies for growing geographically and economically, drawing on the international co-operative principle of "cooperation among co-operatives" (International Co-operative Alliance, n.d.). Growth beyond a local context has often meant orchestrating smaller co-ops' operations together, since democratic control becomes more cumbersome at a large scale (Hansmann, 1999). The most common method for co-operative expansion is through federation—the formation of a "secondary co-operative" whose members are smaller, often highly similar co-operative businesses, which carry out certain business operations jointly (Cadot and Cook, 2016). Examples of this include the United Kingdom's Co-operative Group, which emerged from mid-nineteenth-century consumer co-ops, and the Desjardins Group, a large credit union system founded in Quebec. In Japan, consumer co-ops have created regional federations to accomplish economies of scale, collectively buying products from manufacturers and wholesalers at reduced prices (Kurimoto, 2008). Secondly, co-operatives frequently form associations, which may be organised regionally or nationally around either a shared business model, like the US National Rural Electric Co-operative Association, or a broader commitment to the co-operative movement across various business models, like Confcooperative, AGCI, and Legacoop in Italy, alongside smaller consortia of co-ops that form in particular regions or industries (Menzani and Zamagni, 2010). Associations typically serve more diverse constituents and purposes than federations do, providing standards, training, marketing, and financing for member co-operatives. In Italy's Emilia Romagna region, associations have helped facilitate a co-operative sector that accounts for approximately a third of the entire economy (Duda, 2019). A final form of co-operative aggregation is a network of highly intertwined businesses that share a common stakeholder structure—most famously practised by the Mondragon Corporation in Spain's

Basque region, to the extent that it is best known for its worker-owned co-operatives (Whyte and Whyte, 2014). However, 21 of the 95 Mondragon co-operatives have multiple stakeholder classes within them, such as by including both workers and consumers as members (Imaz, Freundlich and Kanpandegi, 2021).

Here we seek to elucidate a less common but distinctly promising strategy for co-operative scaling: a *multi-stakeholder network*. This approach employs co-operative businesses with different stakeholder structures, each tailored to achieve specific social and business goals. Together, the entities are able to achieve scale in distinct ways, without necessarily incurring the costs of that scale on the others. In a multi-stakeholder network, each business has a single core member class and a highly focused purpose, linked primarily through social interactions. This paper explores how the strategy of multi-stakeholder networking can enable co-ops to align diverse incentives, achieve social goals, and retain democratic accountability while influencing an industry at a national scale. A multi-stakeholder network strategy also appears flexible enough to be replicated in other contexts and industries since it is not dependent on unusual policy arrangements.

Novkovic and Holm (2012) first theorised "multi-stakeholder co-operative networks" and presented the model through the biological lens of "complex adaptive systems". We build on their approach. Each of their case studies, however, organised diverse co-operatives and other entities in a single co-operative; the model we consider here involves no such structural consolidation, and thus only deepens the sense in which complex adaptation serves as a useful mode of analysis. Mondragon Corporation may also be considered a multi-stakeholder network, since in addition to worker-owned co-operatives it includes businesses that include consumers and other stakeholders as members, along with subsidiaries that are not co-operatives (Smith, 2003). The story of its growth also exhibits opportunistic, adaptive features, including expansion through spin-off co-operatives (Whyte and Whyte, 2014; Ellerman, 2015).

Co-operatives in the United States, where this study concentrates, tend to organise according to stakeholder class. The associations for consumer-owned credit unions and electric utility co-operatives each have larger budgets than the apex organisation that represents all kinds of co-operatives. This is beginning to change with an increasingly popular but still relatively novel model, the multi-stakeholder co-operative, which is a single business that includes multiple member classes, such as workers, consumers, and in some cases, investors (Ajates Gonzalez, 2017). The multi-stakeholder network approach differs by enabling distinct, focused businesses to operate relatively independently of other stakeholder groups, while taking advantage of particular synergies.

The multi-stakeholder network includes features that scholars have identified in other kinds of business networks, such as social integration among participants, a shared thematic orientation, and a strong sense of personal attachment (Bode, l'Armee and Alig, 2010). Unlike a business cluster, this strategy is not limited to a specific region and does not consist of companies that primarily compete with each other; its membership is also carefully curated rather than open to all comers, as clusters typically are. While in some respects the multi-stakeholder network is a typical business network, its co-operative identity makes a difference. Co-operative networks can engage in especially valuescentric decision-making compared to networks of investor-owned firms, which likely face greater pressures to sacrifice such concerns to achieve financial returns. Compared to other approaches to co-operative development, this strategy is unique in its diversity, integration, and modularity. The workings of the multi-stakeholder network also reflect the Institutional Analysis and Development framework's concept of polycentric governance, in which various independent sites of decision organise together toward a shared purpose (Ostrom, 2006).

For this paper, a field study was conducted among a group of solar-energy co-operatives that embodies the multi-stakeholder network strategy with particular dynamism. They are based in the United States, along Colorado's Front Range. The case starts with Namasté Solar, a solar electric systems contractor that developed into a worker-owned co-op. As it sought to balance environmental impact, survival, and growth, Namasté Solar incubated a national-scale ecosystem through a series of sibling co-operatives: Amicus Solar (a purchasing co-op), Amicus O&M (a shared-services co-op), Clean Energy Credit Union (a consumer-owned financial institution), and Kachuwa Impact Fund (a co-op of investors). These ventures contribute to the ambitions of the others, particularly through the combination of scale-friendly structures (the credit union and the purchasing co-op) with local, participatory structures (the worker co-op and allied small businesses). Yet as independent entities, each business remains relatively small and nimble in its operations. Together, they have contributed to reshaping their industry nationally. We refer to them collectively as the "Namasté network".

The case illustrates how the multi-stakeholder network approach can enable co-operative growth and problem-solving in ways less available to a single co-operative business alone. By market standards, the individual co-operatives in the network are still relatively modest in size. Yet taken together they represent a set of interlinked co-operative interventions that are poised to make a significant impact in their market and toward their ultimate stated goal of quickening the renewable energy transition. In addition to detailing the development of the Namasté network, we hope this case will contribute to an understanding of how mission-driven co-operatives can achieve scale in a manner distinct from that of investor-owned firms.

In what follows, a case study is presented detailing the development and purpose of each business in the Namasté network. Presenting and analysing our source material constitutes the bulk of the paper, followed by further exploration of the concept of the multi-stakeholder network, highlighting its distinct strengths and potential shortcomings.

2. Methods and research setting

Our fieldwork consisted of interviews and follow-up correspondence with 14 participants involved in the Namasté network, mostly current and former employees. The interviewees were men and women of different ages; some held leadership positions, while others did not. Each interview was conducted through a video call lasting approximately 45 minutes. A snowball sampling methodology was adopted, seeking a diverse sample of informed participants, guided by existing knowledge of the Colorado business ecosystem to identify informants. Given that this study focuses on the narrative of the network's development, and design, interviews were the most direct means of surfacing relevant insights. The questions encouraged participants to reconstruct their own experiences, motivations, and reflections. Their responses are analysed in light of relevant organisational records that participants supplied, publicly available documents, previous research on co-operative business, and the authors' own participant-observation in the sector[1].

The Namasté network emerged from a specific set of conditions in and around Boulder, Colorado. The region enjoys the positive externalities of a strong and vibrant startup community—with its roots planted in the 1970s—and high entrepreneurial density. In 2011, Colorado ranked fourth in the United States for seed and early-stage investments in startup companies (Feld, 2012). Boulder is also a highly affluent community, economically, and lacks in racial and ethnic diversity compared to the state and country as a whole (City of Boulder, 2021). A high cost of living presents barriers to potential residents who inherit legacies of marginalisation, discrimination, and dispossession.

The area is home to the offices of numerous environmental organisations and green-energy firms. Boulder residents have undertaken a protracted (and thus far unsuccessful) effort to assume control over the local power system from a private utility. During the early years of Namasté Solar's growth, additionally, the company benefited from a political environment favorable to renewable energy, such as through federal subsidies. The Obama administration even spotlighted the company several times as a model for the country's post-recession recovery. In 2004, Colorado became the first state to pass a ballot initiative for a Renewable Energy Standard, which obligates electrical utilities to obtain a minimum percentage of their energy from renewable sources. Colorado has also adopted a public benefit corporation statute, enabling a for-profit entity that "balances the shareholders' pecuniary interests, the best interest of those materially affected by the corporation's conduct, and the specific public benefit(s) identified in its articles of incorporation" (Colorado Secretary of State, 2021). The statute's provisions hold directors accountable for their decisions concerning the business' positive social and environmental impact.

Having an appropriate regulatory climate is important for enabling successful co-operatives (Taylor, 2021), and Colorado is an especially inviting jurisdiction for co-operative business. The state has a general-purpose co-operative statute, along with others dedicated to housing, the renewable energy industry, and credit unions. In 2011, Colorado adopted the Uniform Limited Co-operative Association Act, a highly flexible co-operative statute, which permits multiple stakeholder classes within a single business, including external investor-members with limited voting rights and a share

[1] The study was designed to respect our informants and their testimonies. A written statement of voluntary informed consent from participants was obtained, representing a shared understanding of the study's goals, the proposed benefits of the research, and the intent of minimising any threat of harm to the participants. Later, a draft of this paper was made available to participants for their feedback before it was shared with any other readers. The study was determined not to require Institutional Review Board approval at the University of Colorado Boulder.

of revenue or profits. Co-operative lawyers Jason Wiener and Linda Phillips (2018) have branded Colorado "The Delaware of Co-operative Law", as many co-operative businesses not physically based in the state have chosen to incorporate there. However, the kinds of co-operatives that belong to the Namasté network can be incorporated in most other states, so they should not be seen as conditional on Colorado's policy environment.

Support in the state has been growing for employee-owned businesses, using either a co-operative structure or an Employee Stock Ownership Plan (ESOP). The Rocky Mountain Employee Ownership Center, a nonprofit advocacy and technical support organisation, formed in 2010. By 2017, the state legislature passed measures such as a revolving loan program and a requirement that small-business offices provide information about employee-ownership conversions. In 2019, Governor Jared Polis—formerly Boulder's representative in the US Congress, where he championed co-operative business—established a state-wide commission to support employee ownership expansion. The Colorado Employee Ownership Office opened in 2020, providing grants and other assistance to businesses exploring co-operative structures or an ESOP. In this context, Namasté Solar has become one of the state's best-known co-ops, but its growth strategy of multi-stakeholder networking has not been widely recognised.

3. Case study: from startup to network

This section presents the case study's main narrative. The interview data and analysis are intertwined, providing both empirical and conceptual scaffolding on critical inflection points in the businesses' development.

3.1 Namasté Solar

Namasté Solar is a firm headquartered in Boulder that sells and installs solar electric systems. Blake Jones, Wes Kennedy, and Ray Tuomey set up the business in 2005 as a Colorado C corporation to propagate solar energy. The co-founders were first-time entrepreneurs who learned about co-operatives' existence only after founding the company (B. Jones, personal communication, August 26, 2020).

Initially, the three co-founders contributed capital to the business's formation—with some investing substantially more than others—building a custom stock-ownership structure that could include future employees as owners. While co-operatives have historically tended to begin with roughly equal investments from members, Namasté had founders who, to unequal degrees, were able to contribute considerable startup capital. But they set out to create a company that would both generate a return on that initial investment and distribute the benefits of its future success with future employees.

New employees were invited to make a capital contribution to become co-owners. Namasté Solar was a conventional C corporation, but in operational decisions it practised democratic control based on a one-person, one-vote voting mechanism; corporate governance, as in other C corporations, was one-share, one-vote. One early employee, Amanda Bybee, explains that adopting an employee-ownership structure from the beginning created a sense of financial and emotional investment. Regardless of the challenges during the first years of operation, sharing ownership among the founding team instilled the loyalty and commitment that contributed to the later success (A. Bybee, personal communication, October 6, 2020).

Namasté Solar's current CEO, Jason Sharpe (personal communication, October 6, 2020), recalls that all employees used to receive the same salary, and there was intense debate about whether that was fair or truly equitable. After a few years, the company adopted a graduated pay structure. Still, Namasté Solar maintained a highly transparent culture of "open-book management", enabling all employees to review accounting and payroll records. The business grew to almost 200 workers during its first 15 years, maintaining a six-to-one maximum ratio of the highest to lowest total compensation per employee. The ownership model allowed early co-owners to acquire more shares than later members because business growth increased the share price. This concentration seemed at odds with the company's values and democratic governance (A. Bybee, personal communication, October 6, 2020). Namasté Solar's general counsel at the time, Jason Wiener[2], explains:

> *"Over time, the voting process became less frequent, which changed the voting dynamic. The one-member-one-vote mechanism turned into a source of tension towards the disparity between ownership and control. Some co-owners would own significantly more stock. Their capital investment risk would never match the level of respect for their risk because everybody got to participate equitably."* (J. Wiener, personal communication, September 2, 2020)

According to Bybee and Stephen Irvin[3], another early employee, there was a period when the company's leaders considered an acquisition. The company received two offers, one made by a private equity group from Boston and one by a large national consolidator in the solar industry that later became publicly traded. The potential buyers argued that they could help Namasté Solar survive against SolarCity—an investor-backed competitor with a national economy of scale—by integrating it into a larger organisation (S. Irvin, personal communication, August 4, 2020). Tense discussions preceded the decision, and Namasté Solar's co-owners ultimately voted against those bids.

Namasté Solar's team had hesitated to take major outside investment for fear of giving up control of their destiny. According to Sharpe (personal communication, October 6, 2020), *"We were running our business in an unorthodox way and did not want to give that up"*. In companies owned mainly by founders and investors, the owners expect a profitable exit through an eventual acquisition or a public offering, disproportionately benefiting them; toward that end, investors also expect control rights. After refusing both acquisition offers, the employees chose a third route:

[2] Jason Wiener joined Namasté Solar in May 2009, hired as a general counsel and, shortly after, he purchased a stock to become a co-owner. He left the company and created Jason Wiener|p.c., a boutique legal and business consulting practice.

[3] Stephen Irvin is Namasté Solar's former chief financial officer. He is the current president of Amicus Solar.

keeping control of Namasté Solar by converting it to a worker-owned co-operative while achieving economies of scale by creating a national purchasing co-op, Amicus Solar.

In 2009, Namasté Solar's co-owners started learning more about co-operatives, a model that seemed to align well with the operating structure they were already attempting to use (A. Bybee, personal communication, October 6, 2020). A year-long committee investigated and presented co-operative options to the other co-owners. At the end of 2010, the co-owners voted in favor of the conversion, which became effective in January of the following year. In 2011, Namasté Solar also became a Certified B Corporation, a private certification process through the nonprofit organisation B Lab. This helped deepen the company's commitment to the seventh co-operative principle, "concern for community" (International Co-operative Alliance, n.d.).

The conversion to a co-operative model had several motivations. The first was that co-operative decision-making operates according to one-member, one-vote, which the company already practised. Second, the co-operative would better align the ownership structure with the governance culture, correcting the imbalance of increasingly centralised ownership among a few employees. Third, becoming part of the co-operative movement provided a language for articulating the values-centered business practises that Namasté sought to embody (J. Wiener, personal communication, September 2, 2020). Lastly, the conversion laid the groundwork for the entrance of new investors (A. Bybee, personal communication, October 6, 2020).

When the owners agreed to proceed with the co-operative conversion, they created a narrow pathway to exit if an owner desired to liquidate their shares. The shares were reorganised into three classes, with a primary class of voting shares worth 5,000 USD—the amount future members would have to invest—alongside classes for outside investors and employees with additional capital in the business. Founders received returns for their early risk, including those who chose to liquidate their shares at the conversion. But, explains Wiener (personal communication, September 2, 2020), *"the conversion is not a financial transaction in its heart, because it encompasses a whole new vision moving forward with the business. It is essentially the same group of co-owners reorienting themselves"*. As can be the case in co-operative governance (Hansmann, 1999), the time and deliberation represented a significant opportunity cost for the business, thanks to the lengthy discussions among the 52 co-owners. The reorientation was worth it to them.

Shortly after the conversion, Namasté Solar faced a daunting challenge. Colorado's dominant investor-owned utility, Xcel Energy, ended its Solar Rewards Program. Along with a federal tax credit, the program was designed to help solar customers offset their energy systems' prices through a cash rebate. Consequently, Namasté Solar had to lay off 20% of its workforce, including co-owners, which had a significant emotional impact (A. Bybee, personal communication, October 6, 2020). The crisis also presented the company with the need for a new capital infusion.

During Namasté's Solar first several years, capital came from the employee-owners' personal resources. But in order to reorient its strategy, the company sought financing from long-term investors who valued employee ownership and environmental stewardship over fast returns. Other co-ops, such as Equal Exchange and Organic Valley, had already demonstrated how to raise external capital by issuing a class of non-voting preferred shares. Daniel Fireside, the former capital coordinator of Equal Exchange, has served on Namasté Solar's board of directors for over eight years, offering guidance on the fundraising terms and process. Through this mechanism, Namasté Solar raised 750,000 USD in 2012 and then over 3.1 million USD in 2016 (D. Fireside, personal communication, December 22, 2020). The process would later provide a template for investments by Kachuwa Impact Fund.

In comparison to the early practise of simple votes among co-owners, Namasté Solar has developed a more sophisticated governance process. Co-owners join quarterly meetings to discuss and vote on major business decisions, while everyday operations are handled by a clear management structure and distinct business departments. According to Crew Lead and co-owner Davis Fogerty (personal communication, January 15, 2021), this dynamic does not diminish the democratic nature of the endeavor since *"the management team is empowered by the co-operative to make those decisions. It may seem just semantics, but it permeated deeper than that"*. According to Namasté Solar's Commercial Technical Designer, Briana Morris (personal communication, October 30, 2020), centering the business on its workers is key to its longevity.

Namasté Solar has grown from annual revenue of about 15 million USD at the time it became a co-operative in 2011 to around 35 million USD in 2020. The company has also received awards for its achievements. It was recognised as one of *Solar Power World*'s Top Contractors between 2015 and 2020, and *Denver Business Journal* has cited it as the largest Denver-area solar company by kilowatts installed. In 2019, B Lab recognised Namasé Solar as one of its 2019 Best For The World honorees. Also, Namasté Solar was part of the annual list of *Outside Magazine*'s top 100 Best Places to Work between 2013 and 2019.

When Namasté Solar had a record financial year in 2012, the co-owners decided to form an associated nonprofit that provides grants to other clean-energy projects (A. Burke, personal communication, November 6, 2020)[4]. In 2020, amid a pandemic and a protest movement for racial justice, an internal committee proposed a further community profit-sharing scheme. Co-owners voted to allocate 10% of net profits, after preferred dividends, to community organisations working for climate justice, environmental justice, and improving our local communities. Calling the program "Community Profit Sharing", Namasté Solar signaled a commitment somewhat different from conventional corporate giving, as if it were including its community as a member alongside the formal worker-owners.

3.2 Amicus Solar

After several years of success and growth, Namasté Solar explored expanding its operations nationally. It opened offices outside Colorado, including one in White Plains, New York, in 2015. The expansion proved challenging and resulted in poor financial performance. After that experience,

[4] Angela Burke was a Namasté Solar co-owner between 2016 and 2021, working as senior director of technical services, while serving on the boards of Namasté Solar and its affiliated nonprofit.

Namasté Solar recommitted to staying close to its roots in Colorado. As Jason Sharpe put it:

> *"In 2018, with the combination of market conditions, risk, and overextension, we got outside the things we could control. When we tried to grow in too many ways, we overextended ourselves. Growth makes it harder to control risk. Working in other markets with more subcontractors increased the risk and our ability to control this risk. We realised that we were great in Colorado. We are not necessarily great everywhere else. Let's do what we're great at. We have more modest expectations of growth now, focused on maximising our stakeholders' benefit, how to be more profitable, what we can give to our community, and how we can live with lower stress and happier lives. Many people think of growth equals success or growth equals return, and we have realised that is not true. We would rather maximise those other elements of success. We are trying to feed a more diversified local market and be sustainable."* (J. Sharpe, personal communication, October 6, 2020)

By the time it retreated back to Colorado, however, the company's influence had already been spreading nationally in another way. In 2011, the same year Namasté Solar became a co-operative, Amicus Solar was founded by Namasté Solar and other solar companies in a collaborative process led by Blake Jones and Stephen Irvin. Amicus Solar is another co-operative with a different stakeholder structure—a purchasing co-op, owned not by its employees but by companies that buy solar equipment jointly. The co-operative model allows member companies to remain independently owned and locally operated while uniting their market power. Unlike other large co-operatives such as rural electric utilities and credit unions, US purchasing co-ops have frequently achieved national scale without any dedicated federal financing program. When Namasté Solar's leaders learned about the model, they realised it could help address the problems that they and other smaller solar installers faced (B. Jones, personal communication, August 26, 2020). Juan Blohm, a Namasté Solar Lead Technician and employee-owner, identifies advantages in scaling the co-operative movement instead of overextending a single worker co-op:

> *"Instead of growing individual companies like Namasté into a larger company, I am a fan of expanding the co-operative movement itself. Through Amicus Solar co-op, individual companies, with their individual rights, responsibilities, employees, and sets of principles, choose to join together as a purchasing co-operative. I would much rather be able to demonstrate this scaling than growing Namasté Solar so far that you lose the co-operative aspect."* (J. Blohm, personal communication, November 6, 2020)

Amicus Solar has been profitable every year since its founding. In 2020, the company purchased approximately 500 megawatts of solar energy supplies, yet it remains a lean business with only four employees (S. Irvin 2020, personal communication, August 4, 2020)[5]. Amicus has not needed to raise outside capital, relying instead on the members' 20,000 USD one-time investments when joining the co-operative, combined with member dues and vendor rebates, to sustain operations. An investor-owned wholesale distributing company might achieve similar goals, but the co-operative model offers an additional value that other wholesalers cannot:

[5] The company does not publicise its purchasing volume in financial terms.

democratic governance and shared profits. Amicus Solar's surplus earnings are distributed to the member companies through patronage dividends. This helped entice companies to join the co-operative early on. Jones and Irvin had met leaders from many other solar installers at conferences, but forming Amicus Solar nurtured a deeper collaborative culture among them (B. Jones, personal communication, August 26, 2020).

At first, Amicus's main challenge was to assure solar manufacturers that the purchasing co-op was a legitimate business that would benefit them. Co-operatives in other industries supported Amicus early on, especially other purchasing co-ops, sharing insights about the business model and helping the Amicus team implement its vision. As Irvin (personal communication, August 4, 2020) reported, this information flow lowered Amicus's costs; its initial legal fees amounted to around only 1,500 USD. Likewise, Amicus has become a model for other co-ops. Purchasing co-ops usually focus their energy on the relationships between the co-operative and its various members, each on an individual basis. Amicus, however, set out to build informal lateral relationships among member companies. Members participate in open-book management, which allows them to access all information about finances and purchasing operations. Members can see the volume of purchases made by others. This, the founders hoped, would create healthy internal competition, encouraging members to take part in more purchasing opportunities (S. Irvin, personal communication, August 4, 2020). In addition to joint purchasing, Amicus maintains an online platform where employees of member businesses discuss their challenges and opportunities. The membership as a whole meets for an annual retreat, along with smaller retreats for working groups among members with particular shared interests.

Given the high-touch nature of membership, Amicus invests in determining whether prospective members will fit well with the co-op's culture. The evaluation of a company's commitment to social impact and co-operative values takes time and multiple conversations, and it does not rely on any specific formula. The selection committee for new members consists of representatives from member companies. Although Amicus takes its co-operative culture seriously, most of its members are not themselves co-operatives. As of 2021, 17 out of 63 members are employee-owned, either through a worker co-op, an ESOPs, or an equity compensation structure. Several are Certified B Corporations. Amicus has assisted several members transition to employee ownership, which helps ensure that the members will remain independent and values-aligned in the long term (Stranahan, 2018).

As of 2021, Amicus has attracted companies all over the United States, reaching 63 members, and it has extended operations to Canada and Puerto Rico as well. The members generate over 750 million USD in revenue annually. Amicus Solar expects to have Mexican and Caribbean solar companies in the co-op in the near future (S. Irvin, personal communication, August 4, 2020). By forming an independent purchasing co-op, the team behind Namasté Solar retained a locally grounded worker co-op while achieving impact at a national scale and beyond.

3.3 Amicus Operations and Maintenance (O&M)

By 2016, Amicus Solar member companies had identified another common challenge, alongside the need for bulk purchasing; many had difficulties selling operations and maintenance service contracts. In the solar industry, such follow-on services are typically necessary after an installation takes place. Providing services for geographically distributed portfolios has become a growing need in the industry, and it is challenging for smaller, more regionally bounded companies. This is why Amicus members decided to apply the co-operative model to managing operations and maintenance contracts, enabling members to contract with each other easily (A. Bybee, personal communication, October 6, 2020). In 2016, Amicus Solar was awarded an initial 358,000 USD grant from the US Department of Energy's SunShot Initiative to create a sister co-op: Amicus Operations and Maintenance (O&M). Namasté Solar and Radiance Solar were the two founding members, joined by five other solar companies. The following year, Amicus O&M grew to 20 member companies, exceeding the goals of the original grant proposal.

Amicus O&M adopted similar practices that made Amicus Solar successful, as well as complementary branding, but each co-operative focused on its respective mission and business model. Whereas Amicus Solar's bulk purchasing occurs through a hub-and-spoke system, in which member companies place their orders through the central co-op, Amicus O&M operates as a subcontractor network, facilitating contracts between its members and their various clients. As with Amicus Solar, membership growth is constrained by the need for cultural alignment. The selection process filters potential new member companies according to their understanding of the co-operative operations and their commitment to transparency and collaboration. Four new companies joined in 2019 and another four in 2020. Meanwhile, some earlier members have left, which posed a challenge for the co-op to redeem their shares—even though the bylaws allow the board to schedule redemption in a way that protects the co-operative's financial health (A. Bybee, personal communication, October 6, 2020). At the end of 2020, Amicus O&M had 25 active member companies, each paying 5,500 USD in annual dues, with a goal of reaching 40 members. All this occurs with only a single employee, Amanda Bybee.

Compared to Amicus Solar, which operates on a more straightforward business model of bulk purchasing, the relationship-based contracting model has proven less easy for Amicus O&M to expand. The co-operative depends on forces beyond its direct control—in particular, how its members fulfill their service contracts for clients. If one member breaks a client's trust, it can be challenging for the co-operative to re-earn that trust. Maintaining high standards and efficient communication are critical priorities (A. Bybee, personal communication, October 6, 2020). According to Matt Herman (personal communication, March 15, 2021), a Namasté Solar co-owner and member of the Amicus O&M board of directors, growth for Amicus O&M today means gradually reaching a larger portfolio geographically with more specialised companies. In the process, Amicus O&M also offers a way for the Namasté network to broaden its offerings and deepen its participants' ties.

3.4 Clean Energy Credit Union

Solar projects involve high upfront costs, and existing loan products are typically opaque or unavailable, preventing less-wealthy customers from reaping the eventual savings. Loan offerings often charge hefty fees to dealers. By 2014, Amicus Solar member companies identified financing as an obstacle that hindered their ability to attract new customers. They decided to create a new financial institution. Once again, this meant creating a co-operative with its own distinct stakeholder base. Unlike the worker-owned Namasté Solar or the business-owned Amicus co-ops, the financial institution would be owned by consumers—its depositors.

Originally, the founding group considered creating a conventional bank that would focus on renewable energy loans. However, such a bank would likely need to prioritise outside investors expecting a large return on their investment. The founders realised that they could reach a lower cost of financing and a broader range of services through a credit union, which in US law means a nonprofit consumer co-operative whose deposits are generally insured by the federal government. To cover some of the initial startup costs, the founders asked for donations from people who shared their commitments to inclusive financing and expanding access to renewable energy (S. Irvin, personal communication, August 4, 2020).

In September 2017, the National Credit Union Administration granted a federal charter to Clean Energy Credit Union, which became the first credit union specifically focused on mitigating climate change through inclusive financing. Since US credit unions must have a limited geographical or affinity-based "field of membership", the Clean Energy Credit Union has partnered with various environmental organisations whose members are eligible to join. Governance operates on a one-member, one-vote basis, no matter the amount of money a depositor-member holds in the credit union[6].

In the first couple of years, the credit union was responsible for over 35 million USD in renewable energy lending. By April 2021, it exceeded 4,000 loans and 60 million USD in lending (B. Jones, personal communication, April 13, 2021). It relies on a network of companies that refer potential customers for loans through dealer agreements, including green home improvement companies and solar contractors, such as Namasté Solar. Amicus Solar also refers potential strategic partners to the credit union, just as Amicus member companies refer their customers who could benefit from its services (B. Jones, personal communication, August 26, 2020). Due to its nonprofit and co-operative model, the Clean Energy Credit Union offers low-cost, long-term loans that enable homeowners and businesses to keep their payments manageable with the help of energy bill savings. Members who deposit money in the credit union can earn interest on their savings while knowing that the funds will be used solely to help others afford their clean energy projects.

[6] One of the authors, Nathan Schneider, is a member.

Once again, the network around Namasté Solar used a co-op business with a focused mission to overcome a business obstacle. Although the Clean Energy Credit Union is not controlled by Namasté Solar or the Amicus co-ops, it is part of a common ecosystem, with common leaders, and contributes to the common objective of expanding the renewable energy market through values-driven business.

3.5 Kachuwa Impact Fund

Lurking in the background throughout the growth of Namasté Solar's network has been the difficulty in accessing investment capital for co-operatives and other mission-centric businesses. Namasté Solar itself had to give up on the aspiration for reaching national scale, in part because it opted to protect its culture and reject investors' acquisition offers. The Amicus co-ops adopted creative ways to aggregate spending among dozens of smaller businesses that otherwise had limited capital access. The Clean Energy Credit Union had to rely on donations in order to complete the onerous process of becoming a chartered credit union. Aside from certain rural co-ops, which have dedicated federal financing programs, and modest loan pools that specialise in residential, grocery, or worker co-ops, participant-owned businesses in the United States operate at a severe disadvantage for capital access compared to their investor-owned competitors. The problem of demand also extends to supply; investors who would like to support new co-ops have few means by which to do so.

Blake Jones founded Kachuwa Impact Fund in 2005. He used it initially to transition his personal financial holdings into impact investments in privately held companies. In 2016, Jones stepped down as CEO of Namasté Solar to expand Kachuwa as an investment co-op. His personal investments, which he had substantially transferred to Kachuwa by 2017, became the basis of the fund's initial portfolio (B. Jones, personal communication, August 26, 2020). As of 2021, it held over 20 million USD in assets.

Kachuwa is a co-operative and public-benefit corporation formed under Colorado law. Democratically owned and controlled by its investor members, the co-op maintains a portfolio of "impact real estate" (60% of its assets) and "impact companies" (40% of its assets). The fund provides mission-aligned, long-term, and non-controlling capital to privately held businesses while offering diversified investment opportunities to investors. Kachuwa's investors are its controlling members, who vote on a one-member, one-vote basis, regardless of the amount invested. Kachuwa pools its members' investments and then delivers returns as interest payments or dividends. Jones (personal communication, August 26, 2020) calls it *"a mutual fund in Main Street instead of a mutual fund in Wall Street"*.

Unsurprisingly, a focus of Kachuwa's investments has been the renewable energy industry. Namasté Solar is in the fund's portfolio, along with other Amicus Solar members. But its business holdings also include organic foods, fair trade, businesses led by women or people of color, sustainable forestry, and more. It has invested in established co-operatives such as Organic Valley and Equal Exchange and newer ones such as Community Purchasing Alliance, Democracy Brewing, and Tootie's Tempeh. In the process, Kachuwa has joined a small number of investment options available to co-ops seeking to grow. Its investments take a variety of forms depending on a business's needs, including debt or equity. Deals can enable the business to retain all governance rights, since most co-operatives must be controlled by members and not outside investors.

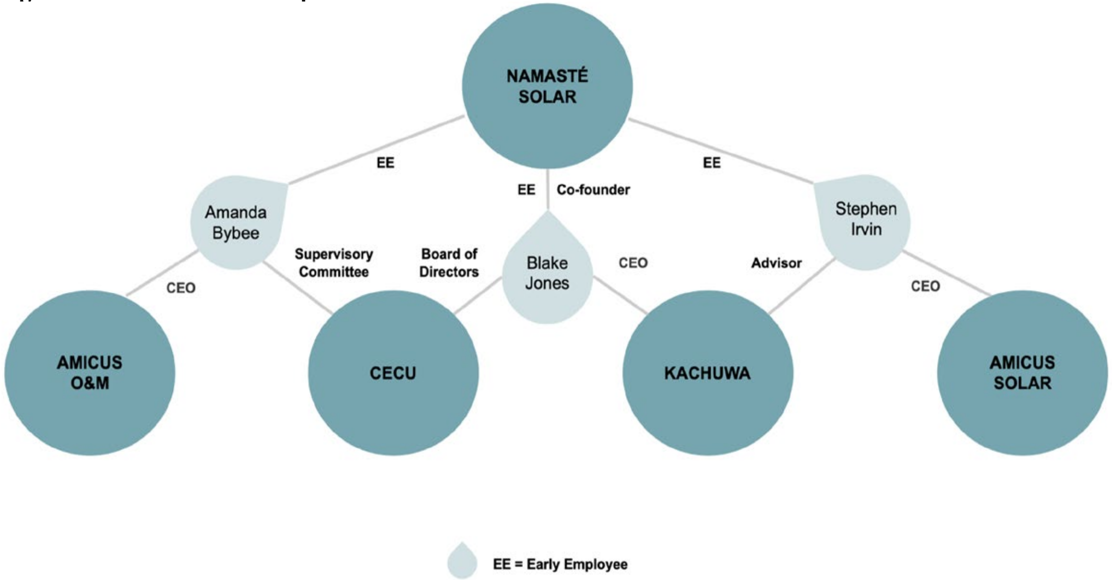
Kachuwa's real estate portfolio amplifies the goals of the business investments. It partners with impact-focused companies seeking to avoid exposure to rent hikes from landlords. It helps them buy their own operating space with a dependable repayment schedule. The fund shares equity ownership with the tenants, allowing them to have potential capital gain if the property gets sold (S. Irvin, personal communication, August 4, 2020). Kachuwa's investments in real estate are exempt from the Investment Company Act of 1940, since it maintains real estate assets at or above 60% of holdings. Investments in real estate can also be sold and liquidated more efficiently than business investments, providing valuable cash-flow options.

Through its various investment types, Kachuwa improves access to capital for values-centered, co-operative, and employee-owned businesses. It introduces investors as another stakeholder class in the Namasté network—yet, by confining them to an investment co-op specifically, protects the other co-operatives from undue investor interference. In the process, Kachuwa also provides hands-on education for investors in the co-operative model by enabling them to become co-op members themselves. Kachuwa has become one more way for the network to achieve impact at scale through diverse co-operative entities.

4. Discussion: an opportunistic network

In certain respects, the network we have presented has become well known. Namasté Solar became a poster child of the American Recovery Reinvestment Stimulus Act that was born out of the Great Recession. In 2009, when President Barack Obama signed the bill, he and Vice President Joe Biden spotlighted a solar installation by Namasté Solar at the Denver Museum of Nature & Science. The company's worker-ownership structure is the subject of a case taught in business schools (Lawrence and Mathews, 2017). However, this recognition has focused on Namasté Solar as a single, remarkable example, rather than as the seed for a network that has reached far beyond its workers and customers in Colorado. The Amicus co-ops may escape notice because they are relatively lean operationally, even though their economic throughput and geographic scope are significant; the Clean Energy Credit Union may not be recognisable as part of the same network for those not aware that it shares founders with the other co-ops. In this case study, we have sought to emphasise the network over any particular business within it, in order to emphasise a process of achieving growth through opportunistic entrepreneurship (Bérubé, Grant and Mansour, 2012; Novkovic and Holm, 2012). If Namasté Solar is to have a lasting effect on its industry, it will likely be less because of the solar panels it installs in Colorado than because of its leadership in transforming the ecosystem for solar businesses across North America. The multi-stakeholder network strategy, we believe, can be a template for other co-operative entrepreneurs.

Figure 1. Namasté network map



Source: Authors' elaboration.

Amicus Solar, Amicus O&M, Namasté Solar, Clean Energy Credit Union, and Kachuwa are all separate entities. They are not a corporate conglomerate, either co-owned by a single parent or through layers of vertical subsidiaries; nor are they connected through a federation or association, as is common among related co-ops around the world. Yet they share many linkages. Each is structured as a co-operative and identifies with the global co-operative movement. Among the founders of each business are early employees of Namasté Solar. Several of the businesses have membership or contractual relationships with each other. Since each business was tailor-made for a specific purpose, together they represent diverse stakeholder structures and business models. They share in the network's benefits while insulating each other from risk. The network has also been able to achieve a balance between stability for more established ventures and lean entrepreneurship for the newer ones. It is an ingenious design, if it had been designed from the start. But it was not.

Instead, each stakeholder model in the network emerged as needs and opportunities emerged. The development of a national network resulted from a stepwise process of problem-solving, along with an ever-growing understanding of the possibilities available through co-op models. Blake Jones describes the process this way:

> *"We did not have some grand plan or grand vision of creating an ecosystem like Mondragon, and here is how we start it. It was more like we had a narrower perspective of starting this first company, and this first company needs some help. Maybe the best way of doing this is partnering with others to create a second co-operative, and then it just snowballed from there. Now that we have some experience, we are starting to think more about an ecosystem's perspective. Here is a new challenge: let's build a co-operative to address that. Now we are starting to architect that as an ecosystem. However, that came later in the game. Usually,*

> *the idea for beginning these co-operatives came from a need or a market opportunity. […] We like that these co-operatives have overlapping interests and overlapping ways to work together in the ecosystem. At the same time, they are not entirely dependent on each other. We wanted to make sure that they could be independent if they needed to be. Because if one co-operative goes out of business, we do not want the whole thing to unravel. We want them to sustain themselves and continue to fulfill their mission, but we believe they can do that better by cooperating. The tagline of Amicus Solar is 'Strong Together'. And we found that to be true."* (B. Jones, personal communication, August 26, 2020)

The meaning of scale may be more complex for co-operatives than for businesses seeking solely firm growth and valuation. As it developed its scaling strategy, the Namasté network identified goals different from what an investor-owned corporation might seek. Rather than focusing on size and financial performance at the level of each separate venture, the network sought to support a broader ecosystem in the solar industry. The meaning of scale varies according to each co-operative; Namasté Solar has approximately 200 employees and operates regionally, for instance, while Amicus O&M has only one employee but operates across the continent. The bulk of the network's impact is likely felt outside the core businesses, among their member businesses and the customers they serve. Rather than accumulating gains in the center of the network, the network pushes them outward.

As the co-operatives have grown, they have had to adjust their operations. Namasté Solar's early all-hands governance model has evolved into a more dynamic system that specifies different spheres of authority for different kinds of decisions. According to Jenna Stadsvold, a Namasté Solar employee-owner who works on the marketing team:

> *"Namasté is learning how to scale. In the beginning, everyone was involved in many decisions. As it grows, expanding the membership basis, the one-member, one-vote co-operative aspect gets more challenging. Scaling a co-operative is a matter of scaling the democratic decision-making process. At a co-operative with almost 200 people, the democratic voting mechanism can get messy. The decision-making process takes much time, energy, and emotional intelligence to manage many people and empower them to make the necessary decisions and move the company forward. When the co-operative reaches a certain level of scale, it is hard to inform everybody about everything. Some changes are led by a group, like the HR team concerning holidays, vacation, sick time, who are responsible for extensive research on their expertise, and put forth well-based recommendations to the other co-owners. This democratic dynamic also entails trusting knowledgeable colleagues in areas in which they are working to make good decisions."* (J. Stadsvold, personal communication, December 21, 2020)

As its leaders describe it, the network's growth has not been an end in itself, but a means for meeting particular social or business goals. Since there are no outside investor-owners seeking solely to increase the value of their shares, these co-operatives can set their intentions on purposes that balance social benefit with financial returns.

This case study describes how a single group of entrepreneurs adapted diverse co-operative business structures in order to meet the social and market needs they encountered. One step at a time, they created a unique network including a worker co-op, a purchasing co-op, a shared-services co-op, a credit union, and an investment co-op. The uniqueness of the case, however, need not be permanent.

While previous literature has discussed multi-stakeholder networks of co-operatives, the Nasmasté network is novel in that it does not rely on a central co-operative entity or brand. In this sense, it exemplifies the logic of a "complex adaptive system" perhaps even more than the examples Novkovic and Holm (2012) use to explain that logic. With its institutional diversity and ad hoc ties through co-operative membership and informal relationships, the network has been able to create economies of scale and cultivate capital access without resorting to conglomeration. What started as an informal alliance based on personal connections and shared culture became a unique ecosystem whose impact occurs less through any one business than the network as a whole.

4.1 A replicable model?

Historically, co-operatives have tended to grow through replication—identifying a successful model and reproducing its essential contours wherever similar conditions recur. This logic has enabled the spread, for instance, of credit unions, agricultural co-ops, and co-operative grocery stores throughout many countries. Does the multi-stakeholder network present a similar opportunity?

Not necessarily. Unlike the earlier examples, the opportunistic nature of this case suggests that formulas are in some sense antithetical to it. Rather, the model of the multi-stakeholder network invites entrepreneurs to consider how diverse co-op businesses might work together to solve common problems. The model is not a formula; it requires creativity and deep understanding of market conditions. Whereas many past co-operative initiatives championed a single stakeholder model such as worker ownership or consumer ownership, the multi-stakeholder network approach asks entrepreneurs to appreciate the many structures that co-ops can adapt and apply them as circumstances require.

Several basic patterns from this case do seem portable for would-be imitators in other sectors:

- Combine "heavy" local entities (with larger numbers of employees and non-liquid capital) with "light", leaner entities that facilitate economies of scale.
- Form a separate business for respective challenges rather than aggregating solutions in a single business, and link the businesses together through membership and other relationships.
- Encourage dynamism by continually generating new business entities alongside the conservatism that tends to set in as co-operatives mature.
- Prioritise building a shared culture among participants to compensate for the relatively weak structural ties that connect the businesses in the network.

It remains to be seen whether this pattern is cohesive enough to be portable, and whether more widespread replication will make forming multi-stakeholder networks easier in the future. Our case, after all, arose from an uncommon group of entrepreneurs willing to prioritise social value over remunerative value. But their success also does not appear to depend entirely on conditions specific to the case, its industry, or its regional context. The pattern of co-operatives forming through spin-offs from other co-operatives has been widely practiced in the Italian and Basque contexts (Zevi et al., 2011: 55; Ellerman, 2015). There is reason to be cautiously optimistic that this case represents a replicable model.

Multi-stakeholder networks are still a relatively rare phenomenon in the co-operative movement. However, there are signs that complex networks such as these are becoming increasingly important for how future generations of co-operatives achieve impact at scale. Several recent initiatives in the United States rely on linking co-operatives, nonprofit organisations, and non-cooperative companies. Examples include Brightly, a nonprofit brand shared among home-cleaning worker co-ops, and The Industrial Commons, a North Carolina regional nonprofit that supports worker co-op and other local businesses, starting in the textile industry. The Seed Commons is a co-operative-friendly network of loan funds across the country. Start.coop and Zebras Unite[7] are startup incubator networks that each include a co-op, a nonprofit, and for-profit investment entities. These more syncretic networks differ from the one presented here in that they are not solely composed of co-operatives, just as earlier examples of the multi-stakeholder network model, the Co-operative Management Education Co-operative (CMEC) and the HealthConnex Health and Wellness Cooperative, involve diverse kinds of organisational forms managing complex socio-economic interactions (Novkovic and Holm, 2012).

Replicability seems to be vital for securing the Namasté network's goals for advancing the transition to renewable energy. Its strategy depends on local, small-scale energy generation, which can only have meaningful impact if it occurs in many places all at once—a strategy that fits well with the network's purchasing, maintenance, and consumer credit co-operatives. Policy may also play a role in replication. This may be especially relevant in the European market, where policies such as the Renewable Energy Directive and the Internal Energy Market Directive organise a concerted renewable energy agenda. While the Namasté network has benefited from renewable energy subsidies in the United States, these policies play a more diffuse role, incentivising private entrepreneurs as the primary drivers of renewable energy projects, without any particular preference for co-operative ownership. The design of the Namasté network is not premised on especially unique policy conditions, but policy could enable similar designs to arise more frequently, such as by encouraging renewable transitions through local enterprise or by investing in models based on community ownership, such as in the European Union's promotion of "renewable energy communities" (Hoicka et al., 2021).

4.2 Shortcomings and limitations

This account of the Namasté network has, on the whole, emphasised its advantages as a method of scaling and problem-solving for co-operative business. However, it is necessary to highlight some potential shortcomings of the multi-stakeholder network strategy, as well as some limitations of the case.

The Namasté network is less than two decades old. Will its connections persist in a generation or more? Can they, or should they? Powell (1990: 327) raises concerns about the durability of business networks, suggesting that they might represent merely "an interim step" between ordinary

[7] Co-author Nathan Schneider serves on boards in both networks.

market transactions and an eventual merger. The co-operative structures of the businesses may reduce the incentive for consolidation, but for large co-ops such as agricultural suppliers and credit unions, mergers appear to become increasingly common with age (Grashuis and Elliott, 2018). It is also conceivable, even probable, that the distinctiveness of the individual co-ops could lead to eventual divergences in their missions and business imperatives, fracturing the network. Changes in the policy environment, such as new solar-energy subsidies or financing options, could entice some network companies to shift their activities outside of the network. This is not necessarily to be mourned, and ephemerality in such networks may be expected corollaries to their dynamism. But there are reasons to suspect that entrepreneurs seeking to establish long-lasting co-op institutions might prefer more fixed structures such as federations over multi-stakeholder networks.

While the Namasté network's commitment to ambitious social and environmental values is one of its most compelling features, research suggests that such commitments can produce tensions in business networks (Tura, Keränen and Patala, 2019), particularly as differences among members of a supply chain produce friction around critical transactions. Here, the Namasté network's emphasis on fostering a strong collective culture among workers and member companies serves to reduce such friction, at least for transactions that occur within the network. Where trusting relationships do occur in business networks, they can produce greater efficiencies than more structural or legal control mechanisms (Massaro et al., 2019).

The emphasis on shared culture and trust-based relationships, however, also presents problems in the context of the case. Expecting broadly shared cultural norms among network participants could reduce the likelihood of cultural and racial diversity among them. Operating out of the relatively homogenous population surrounding Boulder, Colorado, means that such homogeneity may come particularly easily, and may go unnoticed in comparison with the surrounding community. But for co-operatives seeking to confront inequalities of wealth, access, and other forms of privilege, it could become counter-productive to expect members, before joining, to have already adopted certain cultural characteristics.

There are several respects in which dimensions of privilege may hinder the replicability of the Namasté network. Among Namasté Solar's founders, pre-existing wealth enabled the business to avoid relying on outside capital, granting them the option to share ownership with their employees. For the multi-stakeholder network model to be truly replicable, it should be possible to replicate without such rare access to wealth, either through outside capital or business models that can generate revenue in the absence of outsized early investment. Even after the founding period, Namasté Solar worker-owners described a widespread expectation at the company that they should sacrifice part of their financial returns for the sake of advancing the company's social goals and future growth. Namasté Solar's Residential Operations Specialist, Alyssa Soares, highlighted that such expectations may be far less welcome for people from backgrounds that involve generations of marginalisation and expectations of self-sacrifice without reward (A. Soares, personal communication, January 8, 2021). The 5,000 USD membership investment for worker-owners is out of reach for some. Among Namasté Solar's nearly 176 employees as of this writing, 89 are not co-operative members, either because they have not applied for candidacy yet, they are not interested in doing so, or they feel they cannot afford the cost. Such internal inequalities of voice and benefit can have damaging long-term effects on co-operative governance (Molk, 2014). These are concerns that network leaders are aware of, and they have begun exploring means of providing more access to capital for people who traditionally are left out of the financial system, particularly women and people of color (S. Irvin, personal communication, August 4, 2020).

Perhaps the major challenge for the future of this and other multi-stakeholder networks is that of forging a balance between diversity and homogeneity—in business structures, values systems, cultural backgrounds, and pre-existing access to wealth.

5. Conclusion

Namasté Solar and its siblings have been presented as an example of a strategy for achieving large-scale social and economic impact for co-operative businesses, the multi-stakeholder network. Through an opportunistic and adaptive process, the entrepreneurs in this network employed diverse co-operative stakeholder models to address emergent challenges. The businesses are distinct but maintain ties with each other through co-operative membership, relationships among their leaders, and a shared culture. Taken together, the network includes one of the largest worker co-ops in the United States, purchasing power that reaches across North America, and a financial network for both solar consumers and aligned businesses. Few US co-operative enterprises that have emerged in recent decades can claim such achievements.

This is, however, only a preliminary study of only one case. It should spur future exploration into the multi-stakeholder network model for co-operative development. For instance, are the ties in such a network strong enough to prove persistent and durable at larger scales? Can multi-stakeholder networks enable diverse participants, with varying access to privilege and resources, to share wealth and power equitably?

The multi-stakeholder network offers co-operative developers a strategy for achieving ambitious goals that need not be limited to the solar energy sector. For those outside the co-operative movement, the multi-stakeholder network presents an alternative to common understandings of how businesses can or should expand the scale of their activities. Rather than seeking to absorb or replace small businesses in an industry, co-operatives like Amicus Solar and the Clean Energy Credit Union reshape the industry by supporting them. Rather than channeling profit from the edges of the network to the investors at its center, this network distributes surpluses to the member businesses, workers, and consumers at its edges.

For entrepreneurs who aspire to create widespread economic and social impact, the multi-stakeholder network may be an appealing strategy. It also invites a deeper recognition of co-operative business as not merely a single formula or structure but as a pliable, dexterous repertoire, with instruments for many purposes.

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