Mind over Matter:

Essays on Policy Resistance and Unexpected Outcomes in Environmental Entrepreneurship

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"We frequently talk about side effects as if they were a feature of reality. Not so. In reality, there are no side effects, there are just effects. When we take action, there are various effects. The effects we thought of in advance, or were beneficial, we call the main, or intended effects. The effects we didn't anticipate, the effects which fed back to undercut our policy, the effects which harmed the system. These are the ones we claim to be side effects. Side effects are not a feature of reality but a sign that our understanding of the system is narrow and flawed."
(Sterman, 2010, p. 11)

Table of contents

Introduction

Portraying a PhD as a journey is a cliché, yet at this point, I start to feel like there is some truth to it. My journey started in November 2020, under a full lockdown due to COVID-19. This strange point in time represented a break in daily routines on an unprecedented scale and left many wondering what would happen next. When will things go back to normal? Should things go back to normal? What does 'normal' mean? As I started my PhD, at this moment of 'crisis', it had been roughly 50 years since the Club of Rome issued its landmark "Limits to Growth" report (Meadows, Meadows, Randers, & Behrens, 1972). 20 years later, the Union of Concerned Scientists, including the majority of living Nobel laureates, warned that "human beings and the natural world are on a collision course" ("World Scientists' Warning to Humanity," 1992, p. 1). Around the time I started studying at the university, they issued a second notice (Ripple et al., 2017). Yet, over the same 50 years, global annual resource use tripled to 106.6 billion tons (UNEP, 2024). As a result, anthropogenic mass, or 'human-made made stuff', now outweighs all living biomass and continues to double every 20 years (Elhacham, Ben-Uri, Grozovski, Bar-On, & Milo, 2020). Over the same period, annual CO_2 emissions have also grown by 230%, reaching 37.15 billion tons per year in 2022 ("Our World in Data," 2023). At this (still growing) pace, the world is warming an additional 0.1°C roughly every four years and may surpass 1.5°C warming, often defined as the 'safe limit', before 2030 (IPCC, 2021). Habitat destruction, overuse of resources and climate change are in turn the primary drivers of a whopping 70% drop in wildlife populations across more than 5000 monitored species ("Our World in Data," 2018). Species extinction rates are well above 100 times the background rate, leading scientists to conclude we are amidst a sixth period of mass extinction (Sills, Ceballos, & Ehrlich, 2018). Such mass extinction events are defined as the loss of the majority of species over a relatively short period of time and are usually triggered by rare events that change the environment at a pace that leaves species unable to adapt (Sills et al., 2018). This time around, however, we are the rare event. Human activities have become the dominant force shaping our physical environment, its climate and the biological evolution within it. Many of these changes are irreversible. This means it is fair to say that 'normal' is already gone, but we are still shaping what is next. We have entered the Anthropocene. A term used to refer to the geological era in which human actions and decisions have become the main driver of change in physical and biological processes at the planetary scale (Crutzen, 2006, 2016; Steffen, Crutzen, & McNeill, 2007). During this new 'normal', human action will be both the source of our biggest problems and solutions.

Such an increasingly 'endogenous' natural world means that social scientists can no longer afford themselves the luxury of not considering the physical flows, impacts and risks associated with human activity (Keys et al., 2019). This rings especially true for any research on economic activities, which always imply a natural process and are the primary drivers of environmental change (Moore, 2016). Yet, scientific theories were not designed to account for this link. By contrast, the environment has historically been assumed to be infinite, exogenous, and largely outside the scope of research interests (Dasgupta, 2008). As such assumptions become increasingly untenable, however, this has started to change. Within management studies "the inclusion of social and environmental concerns in business operations and in interactions with stakeholders" is studied under the label of corporate sustainability (Dyllick & Hockerts, 2002, p. 131). Since corporations are both the primary cause of environmental degradation (Moore, 2016), but also an important means to address them (Wright & Nyberg, 2015), the nexus of business and the natural environment has become a growing field of research. Emerging broadly in tandem with the modern environmental movement in the 1960s, the field took off after a strategic turn in the 1990s (Bansal & Song, 2016; Bergquist, Cole, Ehrenfeld, King, & Schendler, 2019; Hoffman & Bansal, 2011). This gave rise to a major stream of research focused on the financial and non-financial outcomes of environmental performance improvements for the firm (Albertini, 2013; Ambec & Lanoie, 2008; Berchicci & King, 2007). More recently, a body of literature has emerged around the processes through which managers detect, make sense of, and respond to tensions associated with situations in which economic and environmental objectives are not aligned (Carmine & De Marchi, 2023; Hahn, Figge, Pinkse, & Preuss, 2010; Hahn, Preuss, Pinkse, & Figge, 2014). Slowly but steadily, environmental issues have thus moved from the fringes to the mainstream (de Bakker, Dahlmann, Egri, & Niesten, 2024). For example, the Academy of Management now includes a thriving division that focuses explicitly on Organizations and the Natural Environment (ONE). Even more illustrative of this trend, is that a whopping 55% of the top 20 most cited articles published in top management journals[1] over the past 10 years deal with either corporate social responsibility or corporate sustainability.

Yet, it is unclear whether this increased research attention has had any meaningful impact on practice. Indeed, over the past decades environmental degradation has not halted, nor slowed down, but accelerated instead (Richardson et al., 2023; Steffen, Broadgate, Deutsch, Gaffney,

[1] Academy of Management Journal, Organization Science, Management Science and Strategic Management Journal, database: Web of Science.

& Ludwig, 2015; Steffen et al., 2018). The paradox between the mainstreaming of sustainability as a topic in boardrooms on the one hand and accelerating environmental degradation on the other has been dubbed the big disconnect (Dyllick & Muff, 2015). Management scholars have struggled to explain it since the primary focus in the literature has been on explaining traditional left-hand side variables, including profitability, innovation and firm growth (Russo, Louche, & Wagner, 2024), instead of environmental outcomes (Baudoin, Carmine, Nava, Poggioli, & van den Broek, 2022; Carmine & De Marchi, 2023; Whiteman et al., 2013). As such, the literature has theorized the rationales for both firm engagement and inaction on environmental issues (Ambec & Lanoie, 2008; Bansal, 2003; Bansal & Roth, 2000), and distinguished symbolic actions (or greenwashing) from substantive ones (Kim & Lyon, 2015; Lyon & Maxwell, 2011; Lyon & Montgomery, 2015). However, at present, it is unclear whether substantive firm actions to improve their environmental performance, if they are taken, achieve their intended outcomes (Halme, Rintamäki, Knudsen, Lankoski, & Kuisma, 2018; Vedula et al., 2022a; Wickert & Muzio, 2024). Moreover, a recent review of almost 12,000 studies on corporate sustainability suggests that its disconnection from environmental issues has been increasing over time, and urges scholars to pay more attention to actual environmental outcomes to enable the evaluation of progress in the field (Burbano, Delmas, & Cobo, 2023). As such, I found the field at the beginning of my PhD studies in a state where corporate sustainability had become a mainstream concern, yet with historically limited attention for, and increasing question marks surrounding, the environmental outcomes associated with it (de Bakker et al., 2024).

This dissertation has thus sought to focus empirically on firms that seek to take substantive action to improve their environmental performance. More concretely, it focuses on environmental entrepreneurship, a type of venturing that seeks to simultaneously pursue economic and environmental objectives (York, 2018). Yet, it explicitly relaxes the taken for granted belief that such efforts to address environmental degradation at the firm-level are inherently good or beneficial (Vedula et al., 2022a). Instead, its central research objective concerns their unintended consequences. To this end, this dissertation draws on the concept of policy resistance as an overarching concept for several mechanisms that explain the often counterintuitive results of well-intentioned interventions (Sterman, 2010). In doing so, this dissertation complements existing explanations for limited progress towards environmental targets, which have focused on corporate inaction (Bansal & Roth, 2000), and greenwashing (Lyon & Montgomery, 2015). Before delving into the research objectives and the structure of this dissertation, the following sections will elaborate on these core concepts.

1. Environmental entrepreneurship

Recent years have seen increased scholarly interest in studying how businesses can contribute to addressing grand challenges, including environmental degradation (George, Howard-Grenville, Joshi, & Tihanyi, 2016). To understand how business can be a solution to, rather than a cause of, the latter, scholars have studied how green products, services and business models are brought into existence by both new entrants (de novo) and the diversification of incumbents (de alio) (Hockerts & Wüstenhagen, 2010). This field of research has become known as environmental entrepreneurship, with a focus on understanding why, how and when actors simultaneously pursue economic and ecological benefits through economic activities (York, 2018). Examples of empirical contexts that have been studied as such include renewable energy (Sine & Lee, 2009), organic agriculture (Lee, Hiatt, & Lounsbury, 2017), and green buildings (York, Vedula, & Lenox, 2017). The foundational rationale behind its emergence include the unsustainability of production and consumption patterns, uncertainty surrounding the radical innovations needed to replace them, and a general pessimism in the capacity of governments to solve environmental problems (York & Venkataraman, 2010). As such, the emergence of environmental entrepreneurship as a field of research and strategy to address environmental challenges (Lenox & Chatterji, 2018), is indicative of a broader trend towards private initiatives to address environmental problems, which have been crowding out their public governance since the early 2000s (Kaplan, 2024).

In line with the broader field of entrepreneurship, environmental entrepreneurship is concerned with understanding the nature and sources of opportunities, the characteristics of the entrepreneurs exploiting them and the outcomes associated with doing so (Cohen & Winn, 2007; Vedula et al., 2022a; Venkataraman, 1997). Yet, also in line with the broader field, the bulk of research has focused on the entrepreneur-opportunity nexus (Shane & Venkataraman, 2000). For example, scholars have theorized the sources of opportunities by drawing on environmental economics (Cohen & Winn, 2007; Dean & McMullen, 2007; York & Venkataraman, 2010). A perspective that implies that entrepreneurs will be able to simultaneously generate environmental and economic value when they address market failures or improve its efficiency (Dean & McMullen, 2007). This can include, providing public goods, internalizing externalities, addressing monopoly power, inappropriate government intervention or imperfect information (Dean & McMullen, 2007). In a similar vein, Cohen and Winn (2007) identify resource inefficiencies, externalities, information asymmetries and flawed pricing mechanisms as the sources of opportunities for environmental entrepreneurship. Next to this,

the literature has studied the motivations, traits and characteristics of these entrepreneurs in an effort to explain why they pursue such opportunities (O'Neil & Ucbasaran, 2016; O'Neil, Ucbasaran, & York, 2022; Wry & York, 2017). For example, Wry and York (2017) draw on identity theory to explain how identity claims lead to roles, expectations and templates that structure action and valuation. Next to providing a rationale for action, the double identities of manager and environmentalist, and the conflicting tensions they generate, have been argued to spur increased creativity, perseverance and authenticity (York, 2018).

Less is known about the third research question in the field, namely, the outcomes associated with environmental entrepreneurship (Vedula et al., 2022a). Concretely, the literature has focused on intermediate outcomes such as the creation of markets for green products (Lee et al., 2017), firm entry into such 'moral markets' (Georgallis & Lee, 2020) and the adoption of environmental practices or products (York et al., 2017). Implicitly, the literature has assumed that such green alternatives will displace the consumption of an environmentally inferior alternative and thus bring about ecological benefits (Cohen & Winn, 2007). However, actual environmental outcome measurements were found to be absent in recent literature reviews (Anand, Argade, Barkemeyer, & Salignac, 2021; Vedula et al., 2022a). It has been noted that this lack of understanding has resulted in an inability to discriminate the effectiveness of different types of environmental entrepreneurship, and opens the field up to symbolism and organized hypocrisy (Anand et al., 2021). In addition to this, it may be a reason to explain the sense of optimism which pervades the literature despite macro-level trends in environmental degradation (York, 2018), and the taken for granted belief that environmental entrepreneurship is inherently good and beneficial (Vedula et al., 2022a). Yet, this attitude seems at odds with historical experience, which is replete with innovations introduced to address an environmental problem only to end up creating another that is often harder to address (Hall, Daneke, & Lenox, 2010). Just consider how private cars were heralded as a clean technology, by solving the problem of horse manure in cities, but are now a primary driver of air pollution, killing an estimated 7 million people per year (WHO, 2022). In a similar vein, plastic was developed as a by-product of oil refining (Freinkel, 2011), and would thus qualify as a 'circular business model' nowadays. Yet, it is also the world's most widespread and persistent form of pollution (Geyer, Jambeck, & Law, 2017), threatening biodiversity and human health. At present, the literature is at a loss when it comes to explaining the dynamics underlying such unintended consequences (Vedula et al., 2022a), a research gap that has come to form the central research objective of this dissertation.

2. Policy resistance

To develop a better understanding of such dynamics, this dissertation draws on the concept of policy resistance. This concept denotes the common tendency by which well-intentioned interventions are defeated by the side effects or unintended consequences they create (Castro, 2022; Ghaffarzadegan, Lyneis, & Richardson, 2011; Sterman, 2010), and was originally developed in system dynamics (Meadows, 2008). It thus explicitly considers how our best efforts to solve problems may end up making things worse (de Gooyert, Rouwette, van Kranenburg, Freeman, & van Breen, 2016). This phenomenon has been argued to result from a mismatch between the complexity of the systems in which we are intervening, and the mental models used to plan and evaluate such interventions (Sterman, 2010). These mental models are studied under various names in various disciplines including, psychology, sociology and management (Jones, Ross, Lynam, Perez, & Leitch, 2011), but in essence capture the routines, heuristics and cognitive maps that guide action, experience and interpretation (Axelrod, 1976; Bostrom, Morgan, Fischhoff, & Read, 1994; Gary & Wood, 2011). These mental pictures always represent a simplification of reality's complexity and are typically fuzzy, incomplete and implicit (Forrester, 1971).

Nevertheless, simplified mental models tend to do well at representing the effects of interventions that are unidirectional and closely related in space and time (Sterman, 2010). Moreover, we learn to make better decisions through learning in decision-making contexts that are experienced frequently, and with rapid, unambiguous feedback about outcomes (Sterman, 1994). By extension, this means policy resistance tends to occur when similar simplifications are used to guide action in more complex settings, with substantial delayed or distant effects and feedback mechanisms. Moreover, it tends to persist if outcomes are not readily observable and learning is complicated (Sterman, 2010). For instance, delayed effects can bring about policy resistance if short-term, positive outcomes are identified and anticipated while delayed and negative outcomes are overlooked. For example, forest fire prevention programs in US national parks, while remarkably successful in the short run, led to increased tree density and the accumulation of dead wood across large areas (Holling & Meffe, 1996). In the long run, this resulted in less frequent but hotter, larger and more deadly fires (Collins, de Neufville, Claro, Oliveira, & Pacheco, 2013). An example of the same dynamic in another complex setting, concerns the Basel II regulations, which introduced minimum capital requirements to increase the stability and resilience of the international banking sector. In doing so, they successfully ensured that banks had adequate buffers for current risks, preventing immediate

financial crises. However, they also created additional volatility over time, known as the endogenous leverage cycle, by encouraging banks to raise their leverage during stable periods but rapidly reduce it during downturns (Aymanns, Caccioli, Farmer, & Tan, 2016). In doing so, these regulations are now thought to have played an important role in propagating a shock in the housing market into a full-blown global financial crisis in 2008 (Adrian & Shin, 2008).

A second source of policy resistance springs from looking at the world in silos, and the associated tendency to overlook distant effects. Indeed, these artificial boundaries, used to plan and evaluate decisions, have been heralded as "the single greatest source of policy resistance" (Sterman, 2010, p. 851). For example, while we think about the weather as external and given, human influence has affected the weather to the extent that there is a seven-day cycle in cloud formation and the probability of rain (Cerveny & Balling, 1998). This is due to the concentration of aerosol pollutants emitted by cars, which builds up throughout the week and dissipates over the weekend. As a result, Monday is the nicest day of the week, and weekends have the highest probability of rain. Yet, we typically do not consider the possibility of ruining our weekend plans when deciding to drive the car to work (Sterman, 2010). An additional, less frivolous, example concerns the use of groundwater irrigation by millions of farmers in India, which is not only depleting groundwater reservoirs, but also impacts local and regional water cycles. Indeed, analysis shows that up to 40% of precipitation in East Africa derives from irrigation in India (de Vrese, Hagemann, & Claussen, 2016). Changes in Indian irrigation patterns, necessary to avoid freshwater stock depletion and thus water scarcity, are likely to exacerbate water scarcity in the even more arid region of East Africa (Keys et al., 2019). Yet, this delicate dilemma is unlikely to be resolved while taking into account such distant effects.

The last source of policy resistance concerns the tendency to overlook the feedback effects triggered by interventions (Castro, 2022). Since society consists of a multitude of actors, each with their own goals, interventions often lead to counterreactions from others. These modifications in behavior often counteract the anticipated impact of an intervention (Meadows, 2008). An illustrative example of this dynamic relates to the Endangered Species Act, enacted in 1973 in the United States. This law introduced an ambitious plan to conserve threatened flora and fauna by protecting the physical habitats on which they depend, whatever the economic cost. However, for property owners, it implied that avoiding the devaluation such conservation efforts entailed for their property, meant they had to prevent endangered species from occupying it. This led to the intentional destruction of possible habitats for endangered species, leading a study evaluating the law to conclude that there is "the distinct possibility that the

endangered species act is actually endangering, rather than protecting, species" (List, Margolis, & Osgood, 2006, p. 3). A last example concerning the same dynamic relates to road building programs, typically designed to reduce congestion but which often end up increasing it. Especially in urban areas, where congestion is most common, additional road capacity can lead to a more than offsetting increase in travel demand, resulting in more congestion, delays and pollution (Hansen & Huang, 1997; Noland, 2001; Walnum, Aall, & Løkke, 2014). The Downs-Thomson paradox even argues that road construction may increase travel times for public transport if some of its users switch to private cars and fewer users lead to a reduction in service (Dechenaux, Mago, & Razzolini, 2014).

Failing to consider how these complex dynamics can affect the envisioned outcomes of interventions, can lead to a sense of futility about and disengagement with complex problems as targets are missed and progress remains elusive (Castro, 2022; Ghaffarzadegan et al., 2011; Sterman, 2010). Moreover, in the absence of an explicit consideration for policy resistance, there is a tendency to treat these unintended consequences of our own actions as external features of reality, or to blame others, when we are at last confronted with disappointing outcomes (Sterman, 2012). Such misperceptions of feedback constitute an important barrier to learning and can lead to a persisting failure to improve mental models over time (Sterman, 1994). By contrast, explicitly examining the possibility of side effects and unintended consequences of our own actions, is an invitation to make mental models explicit, as well as to continually contest and rethink them. As such, it presents an actionable and gradual avenue to improve system thinking capabilities, and an opportunity to improve decision-making that seeks to grapple with the most complex problems of our time (Klag & Langley, 2023; Meadows, 2008; Schad & Bansal, 2018).

3. Aim and structure of the dissertation

The examples in the previous section illustrate that policy resistance has often, albeit not exclusively (Sterman, 2010), been documented in the context of public policies. However, its association with managerial decision-making is becoming increasingly relevant as the traditional separation between private and public governance is breaking down. In this context, firms are increasingly held responsible for complex societal problems and take on the provision of public goods historically provided by public actors (Lindgreen & Swaen, 2010; Reinecke & Ansari, 2016; Scherer & Palazzo, 2011). In addition to this general trend, three reasons make the issue especially worthy of consideration in the context of environmental entrepreneurship. First, understanding the outcomes of interventions seeking to change social-ecological

interactions is notoriously complex. This means potential sources of policy resistance, such as delayed, distant and feedback effects (Keys et al., 2019), will be prevalent. Second, the historical negligence of the natural environment in economics and management theories means there are important knowledge gaps across disciplines, and a lot of simplified assumptions persist amidst this complexity (Bansal et al., 2024; Dasgupta, 2008; Davis & DeWitt, 2024). Last, this is especially concerning because the stakes are high. As tipping points are reached, scientists stress that decisions made in the coming years and decades could determine the state of natural ecosystems for millennia to come (Kemp et al., 2022; Keys et al., 2019; Rockström et al., 2023). It can be particularly problematic if erroneous simplifying assumptions embed policy resistance into theoretical frameworks because theories do not merely describe but also shape social realities (Ghoshal & Moran, 1996; Marti & Gond, 2018; Wickert & Muzio, 2024). Consequently, these theories would become counterperformative, which means their application to practice will be counterproductive. Concerns over the existence of such counterperformativity have recently been voiced over management theories in relation to climate change (Wickert & Muzio, 2024), and are at present hotly debated (Bansal et al., 2024; Davis & DeWitt, 2024; Foss & Klein, 2024).

The research objective of this dissertation is to contribute to this ongoing debate by relaxing the taken for granted assumption that environmental entrepreneurship is inherently good and beneficial (Vedula et al., 2022a). Concretely, it aims to explicitly consider the possibility of unexpected outcomes arising as a result of policy resistance. Policy resistance denotes the common tendency by which well-intentioned interventions are defeated by the side effects they create and results from a mismatch between the complexity of the systems we are intervening in and the mental models we use to plan and evaluate those interventions (Sterman, 2010). This dissertation focuses on three common sources of policy resistance—delayed effects, distant effects, and feedback effects—to understand their potential for generating unexpected outcomes. The central research question of this dissertation can thus be formulated as follows: How does policy resistance manifest within environmental entrepreneurship, and how do delayed effects, distant effects, and feedback effects contribute to unexpected outcomes in firm efforts to address environmental problems? By examining these dynamics, the research seeks to provide deeper insights into why interventions aimed at improving environmental outcomes may fall short or even produce counterproductive effects. In doing so, this dissertation extends the literature on outcomes of environmental entrepreneurship, which has typically considered intermediate proxies such as market creation, firm entry and product adoption as outcome

variables (Cainelli, D'Amato, & Mazzanti, 2020; Georgallis & Lee, 2020; Lee et al., 2017). In addition, it complements existing explanations for a lack of progress towards environmental goals in the corporate sustainability literature, which have focused on corporate inaction (Bansal & Roth, 2000), and greenwashing (Lyon & Montgomery, 2015). More broadly, the concept of policy resistance presents a gradual but actionable avenue to answer calls for more explicit accounts of system-level analysis in management theories (Carmine & De Marchi, 2023; Schad & Bansal, 2018; Whiteman et al., 2013) and contributes to ongoing debates on the counterperformativity of existing theories (Wickert & Muzio, 2024). This section gives an overview of the philosophical position and empirical context through which this research objective has been pursued before introducing the structure of the dissertation.

Epistemological stance

Philosophy of science asks how science works, what methods are appropriate, and how knowledge can be generated. It distinguishes questions related to ontology (what exists) and epistemology (how we know). Different philosophical traditions can be distinguished by the assumptions they make regarding these fundamental questions. The philosophical position adopted in this dissertation, is denoted as critical realism and can be understood by juxtaposing positivism and interpretivism (Bhaskar, 2008; Mir, Willmott, & Greenwood, 2015; Spash, 2012). The former refers to the idea that there is a single, objective reality that can be understood based on observation alone. As a consequence, this tradition emphasizes observable facts and the belief that objective and impartial science is possible. The latter stresses that reality is plural, subjective and socially constructed, as knowledge is always shaped by human interpretation. It thus does not acknowledge the existence of an objective reality outside of human perception and argues that scientific theories will be inherently normative and value-laden. In between these extremes, critical realism posits that an independent reality exists but that our understanding of it is imperfect and mediated by interpretation and theory. This approach is enabled in practice through a fallible epistemology, which takes as a central starting point that all knowledge is guesswork and may thus turn out to be false, while acknowledging that some guesses are better than others (Mir et al., 2015). This perspective thus highlights the need for both critical thinking and a certain degree of pragmatism. Moreover, it differs from other philosophical traditions by its stratified ontology that distinguishes the empirical (what we observe), the actual (what happens whether or not it is observed), and the real (the mechanisms and structures causing what happens). This hierarchical ontology, explicitly allows accounting for the structural dependencies through which the social world is embedded in and enabled by

the natural one (Spash, 2012). Moreover, while positivism focuses on patterns in data and interpretivism on meaning and experience, critical realism is marked by an emphasis on the underlying structures and mechanisms that cause observable events. As a consequence of this critical realist position, this dissertation integrates both subjective, non-observable factors (for example, mental models), objective, realist elements (for example, CO_2 emissions), and is focused on underlying, explanatory mechanisms to connect them (for example, the rebound effect).

Empirical context

The inability to address the research objective of this dissertation based on public databases, and the epistemological focus on the identification of explanatory causal mechanisms, led to the adoption of a case-based research design for a large part of this dissertation. More concretely, this project explores the issue of policy resistance, mainly in the context of carsharing[2]. The practice of carsharing has been around since 1948, when it was started in Switzerland by a small group of individuals who set up a carsharing cooperative (Shaheen & Cohen, 2007). Driven by environmental concerns, the idea was to share the use of a single car among a group of people, thereby reducing the number of cars on the road. While historically limited to pre-existing social ties, digital platforms have more recently enabled sharing among strangers (Frenken & Schor, 2017), increasing the scalability of such sharing activities (Cossey, Dedeurwaerdere, & Périlleux, 2023). Since then, several varieties of carsharing have emerged, including peer-to-peer, round-trip and one-way carsharing, also known as free floating carsharing (Münzel, Boon, Frenken, & Vaskelainen, 2018). This has turned carsharing into a global phenomenon (Shaheen & Cohen, 2007), with an estimated 54.19 million users, representing a 12.1 billion euro market in revenue in 2023 (Statista, 2023).

As such, carsharing falls squarely within the scope of environmental entrepreneurship, concerned with the introduction of green products, services or business models that seek to simultaneously create economic and ecological benefits (York, 2018). But, the selection of this empirical context in particular was informed by an intensity sampling strategy (Patton, 2002). Concretely, there are three reasons to expect it to be an especially information-rich case in which the phenomena of interest are intensely manifested and thus easy to study. First, the green claim underlying the sharing economy is highly intuitive. If we would use existing product stocks more efficiently, we would need less production (Botsman & Rogers, 2010). For

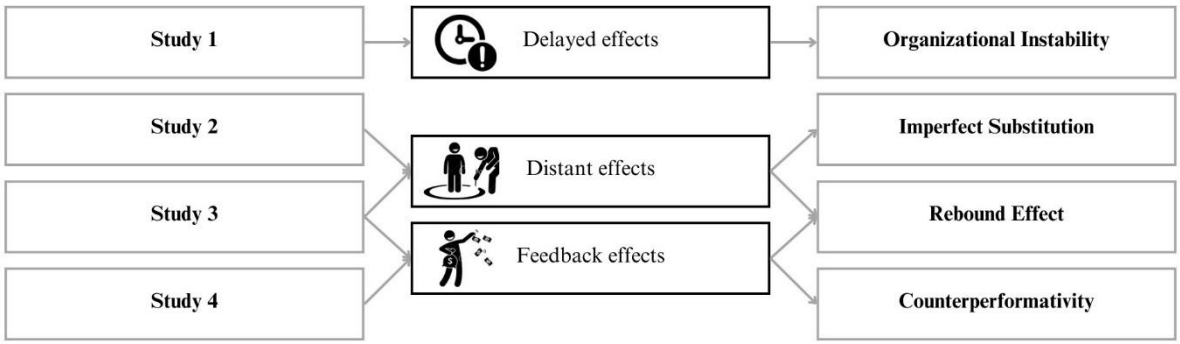
[2] With the exception of Study 1, which is broader in empirical scope, and Study 4, which concerns a bibliometric literature review.

example, European cars are parked 92 percent of the time, which means that if shared among them, it could satisfy the mobility needs of multiple households (Ellen MacArthur Foundation, 2015). In addition to this, the schemes organizing the shared use of a durable good are highly visible. Both aspects make these contexts conceptually clear and therefore desirable to study. Second, the purchase of a private car typically constitutes one of the largest expenditures for households after housing and are valued for the flexibility, privacy and status they confer (Haustein, 2021; Moody, Farr, Papagelis, & Keith, 2021). This economic significance means that factors related to this decision may be displayed with more intensity than for other green products. Third, this empirical context is also expected to be illustrative in environmental terms given that the use of private cars is associated with air pollution, noise pollution, habitat fragmentation and of course, greenhouse gas emissions (Creutzig et al., 2015; EEA, 2024; Kelly & Zhu, 2016). Globally, transport constitutes 27% of energy-related greenhouse gas emissions, which already represents a 73% increase since 1990, and with demand expected to surge in the coming decades, the sector has been called a roadblock to climate change (Creutzig et al., 2015). However, not all transport emissions are equally difficult to mitigate. Indeed, it is estimated that urban mobility represents 40% of transport emissions (Berrill et al., 2024), and a modal shift from private cars towards alternative transport modes such as public transport, biking or walking could reduce 20-50% of them (Creutzig et al., 2015). In addition to their climate benefits, the mitigation of such urban emissions could lead to improvements in quality of life and health (Berrill et al., 2024). As a key lever to enable such modal shifts away from private car use, carsharing has drawn a lot of research and policy attention in recent years.

Dissertation structure

As noted before, policy resistance derives from a mismatch between the complexity of the systems in which we are intervening, and the mental models used to plan and evaluate such interventions (Sterman, 2010). This type of disconnect is especially common in decision-making contexts that are characterized by substantial delayed, distant and feedback effects. These three common sources of policy resistance, have been operationalized in the context of environmental entrepreneurship, for the purposes of this dissertation, through four individual studies. An illustrative overview of this structure is provided by Figure 1.

Figure 1. Dissertation structure by source of policy resistance per study



The first study zooms in on the possibility of policy resistance due to a delayed effect associated with environmental entrepreneurship. In particular, we study the possibility of an increased propensity towards mission drift and bankruptcy that destabilize organizations simultaneously pursuing economic and environmental goals (Dewatripont & Tirole, 2024). Indeed, prior research shows that firms face additional governance challenges when pursuing such competing demands (Besharov & Smith, 2014; Cossey, Billiet, Dufays, & Bruneel, 2023; Pache & Santos, 2013). Yet, the environmental entrepreneurship literature has focused on explaining the drivers of market creation and firm entry (Georgallis & Lee, 2020; Meek, Pacheco, & York, 2010; Sine & Lee, 2009), and has paid less attention to firm survival (Vedula, York, Conger, & Embry, 2022b). We study this question in the context of the sharing economy, where such tensions and the organizational instability to which they can lead have been noted before (Acquier, Daudigeos, & Pinkse, 2017). More specifically, sharing platforms enabling sharing among strangers were initially expected to allow for increased scalability of traditional, community-based sharing. Through the organizing of such shared use of underutilized resources, digital sharing platforms were seen as a green alternative (Belk, Eckhardt, & Bardhi, 2019; Botsman & Rogers, 2010; Sundararajan, 2017), and expected to play an important role in the broader transition towards a circular economy (European Commission, 2015; Reichel, De Schoenmakere, Gillabel, Martin, & Hoogeveen, 2016). Yet, recent years saw contestation over the increasing commercialization of the sector, and its negative societal and ambiguous environmental consequences (Cockayne, 2016; Martin, 2016; Meshulam, Goldberg, Ivanova, & Makov, 2024). In this study, we explore whether this growing commercial orientation can be explained by an increased propensity of platforms pursuing social or environmental goals to experience mission drift or bankruptcy. This study builds on an extensive geographic mapping of the sharing economy in Brussels to build a granular dataset, capturing differences in activities, funding structure and governance characteristics across initiatives. Based on this

effort, we do not find evidence for policy resistance through delayed effects in the form of such increased instability. By contrast, we find evidence for an increased ability to scale while retaining a social or environmental objective. A finding that seems to contradict existing theory. Consequently, we extended our study to a mixed-methods research design to identify the distinct scaling strategies that allow platforms to do so. This paper was published in Ecological Economics (Cossey, Dedeurwaerdere, & Périlleux, 2023).

The next study explores the potential of a second source of policy resistance in the context of environmental entrepreneurship, namely, narrow system boundaries and the associated risk of overlooking distant effects such as imperfect substitution. More specifically, environmental entrepreneurs pursue the simultaneous creation of economic and environmental benefits through the creation of new products and services (York, 2018). However, the environmental potential of such green alternatives is conditional on their ability to substitute for an environmentally inferior alternative (Cohen & Winn, 2007; Cottrell et al., 2021; Hamilton et al., 2014). The literature has typically not considered such substitution effects explicitly, focusing instead on intermediate proxies such as market creation, firm entry and product adoption (Georgallis & Lee, 2020; Meek, Pacheco, & York, 2010; Sine & Lee, 2009). Yet, these narrow system boundaries are often combined with the bold assumption that substitution would happen on a 1:1 ratio (Vedula et al., 2022a). Indeed, it is this assumption that justifies an understanding of environmental entrepreneurship as inherently beneficial (Vedula et al., 2022a). However, an emerging literature suggests the possibility of much lower substitution effects in practice, including for alternative food products (Cottrell et al., 2021), renewable energy sources (York, 2012), as well as in the context of the circular economy (Zink, Geyer, & Startz, 2018). Consequently, this study seeks to develop a better understanding of the factors that underly, and may allow for the management of substitution ratios. Concretely, the study starts by reviewing three approaches to behavioral change, centered around individual intentions, behavioral lock-in and structural lock-in, respectively. Subsequently, it empirically assesses the ability of these competing theoretical perspectives to explain the substitution effect of carsharing for private car ownership. In doing so, it finds that individual intentions, structural changes and the interaction between them can substantially affect substitution ratios. It concludes by outlining how these findings contribute to the theory and practice of environmental entrepreneurship.

The following study takes a third source of policy resistance into consideration, namely, feedback effects. Concretely, it provides a technique to estimate rebound effects conditional on

imperfect substitution patterns. The rebound effect captures a discrepancy between expected and realized savings from improvements in environmental efficiency as a result of overlooking feedback mechanisms. A classic example is the improvement of fuel efficiency in private cars, which is widely expected to save energy and reduce emissions (see, for example, Foss & Klein, 2024). However, the rebound effect captures how much of such savings remain after accounting for the way in which more efficient cars increase energy demand through increased driving (Chai, Yang, Wang, & Lai, 2016), bigger and more powerful cars (Olson, 2013) and cost savings that increase demand for other goods and services (Font Vivanco, Kemp, & van der Voet, 2015). In recent years, the discussion on rebound effects has evolved from such improvements in energy efficiency to include resource and environmental efficiency improvements more broadly. In these contexts, the substitution of a new product or business model is typically imperfect, as highlighted in Study 2. While some conceptual frameworks have integrated this insight, empirical studies have typically continued to assume perfect substitution. In this paper, we use survey data to produce rebound estimates that account for imperfect substitution. In doing so, we highlight the importance of assumptions regarding substitution patterns in explaining the actual environmental savings, the magnitude of the rebound effect, and its heterogeneity across consumer segments. We conclude by outlining how these findings increase the actionability of rebound estimates for decision-makers.

The last study explores how the issue of rebound effects may inform the debate on counterperformativity, referring to situations in which theories lead to counterproductive results in practice (Wickert & Muzio, 2024). Concretely, this paper reviews the literature on the rebound effect, documenting how the concept emerged among economists studying energy efficiency improvements and, more recently, has been applied by industrial ecologists to study environmental efficiency improvements across diverse empirical contexts. While this issue raises major questions about the ability of firms to simultaneously improve environmental and economic goals through efficiency improvements, our review highlights just how disconnected this literature is from existing management research. The neglect of this issue raises questions about the potential counterperformativity associated with a number of theoretical perspectives studying win-win strategies, including the natural resource-based view (Aragon-Correa & Sharma, 2003; Hart, 1995; Hart & Dowell, 2010), eco-innovation (Costantini, Crespi, Martini, & Pennacchio, 2015; Kesidou & Demirel, 2012; Veugelers, 2012), and environmental entrepreneurship (Cohen & Winn, 2007; Vedula et al., 2022a; York & Venkataraman, 2010). To overcome this state of the literature, we propose a research agenda that seeks to increase the

managerial relevance of the rebound effect based on three conceptual shifts pertaining to the what, why and how of the literature (Cronin & George, 2023). First, we propose a broad understanding of rebound mechanisms relevant for management scholars as those connecting firm actions with system-level outcomes. Second, we point to a need for more studies focused on understanding how rebound effects are perceived by and acted upon by firms and their stakeholders, next to studies focused on its measurement, which have been the primary concern in the literature. Third, we identify a potential for methodological diversification in the literature, particularly through the application of qualitative research methods, simulation models and action research. We conclude by discussing how our review and research agenda contribute to ongoing debates on counterperformativity and enable theory-building that better accounts for the systemic nature of outcomes related to the natural environment in management theory.

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Study 1

INHERENTLY UNSTABLE? SCALING, MISSION DRIFT AND THE COMPARATIVE PERFORMANCE OF COMMUNITY-BASED PLATFORMS IN THE SHARING ECONOMY[3]

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ABSTRACT

Digital platforms have enabled sharing among strangers as a means to satisfy economic needs. This development was expected to allow traditional, community-based sharing to be taken to a much larger scale, providing a mechanism to address a variety of societal and environmental concerns. However, this early optimism seems misguided, as commercial sharing economy platforms are increasingly criticized for their negative societal consequences and ambiguous environmental impact. Testing claims made in the literature, we investigate whether this mission drift in community-based platforms can indeed explain this shift towards an increasingly commercial orientation in the sharing economy. Building on a comprehensive geographical mapping, the quantitative analysis of our granular dataset does not support these claims. Rather, we find that community-based platforms perceive increased scaling potential while avoiding mission drift. By complementing these quantitative findings with an in-depth case study, we explain the underlying mechanisms allowing for this alternative scaling strategy of community-based platforms.

Keywords*:* sharing economy, platform economy, digital platforms, community-based governance, mission drift.

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1. Introduction

Sharing as a means to satisfy economic needs has a long history, which has mainly been studied by anthropologists (Mauss, 2001; Polanyi, 1957). As an alternative to market exchange, it is associated with non-profit initiatives (Etter et al., 2019), and is especially important for marginalized communities (Frenken and Schor, 2017). These community-based initiatives (CBIs) are coordinated mainly non-hierarchically, through non-contractual or non-monetized forms of interaction, to perform work or form exchange relationships (Acquier et al., 2017, p. 16; Bauwens, 2005; Benkler, 2004). Thus, they are governed neither through pure markets nor through hierarchies (Adler, 2001; Ouchi, 1980). Instead, they rely on norm-based self-governance to coordinate use of shared resources (Ostrom, 1990), and tend to focus on addressing the "unsustainability, injustices and inequalities of market economies" through collective action (Martin et al., 2015, p. 1). Nevertheless, this type of governance has important limitations, including high coordination costs, especially when heterogeneous members are involved (Hansmann, 2000). It also depends heavily on pre-existing social ties, explaining its limited scaling potential (Acquier et al., 2017; Ostrom et al., 1999).

More recently, sharing economy platforms have begun to use digital technologies to intermediate sharing activities. These have reduced transaction costs, established mechanisms for digital trust, and thereby allowed the emergence of "stranger sharing" (Frenken and Schor, 2017, p. 2). Initially, it was expected that community-based platforms (CBPs), which combine community-based governance with digital platforms (Acquier et al., 2017), would enable collaborative and democratic action on a large scale, capable of addressing a variety of societal and environmental concerns. However, the sector is increasingly centered around a few commercially-oriented access platforms (APs) governed purely by market mechanisms (Acquier et al., 2017), which arguably misuse the existing prosocial narrative (Cockayne, 2016), leading to criticism of its negative societal consequences and ambiguous environmental impact. Some scholars argue that the phenomenon is better conceptualized as a neoliberal nightmare (Martin, 2016), and as a poster child for what is wrong with contemporary capitalism, rather than an alternative to it (Etter et al., 2019).

Theoretical and empirical evidence suggests that one driver of the sector's shift towards an increasingly commercial orientation is the inherent instability of CBPs. Digital platforms need to operate on a large scale to reduce their operating costs, whereas community-based governance operates on a limited scale to avoid high coordination costs. It is argued that this tension makes it difficult for CBPs to meet the strategic challenges of the platform economy

(Acquier et al., 2017; Etter et al., 2019; Martin et al., 2015), leading them into either bankruptcy or mission drift. In this paper, we test this *inherent instability* thesis.

Adopting a mixed-methods research design, we start by quantitatively analyzing the extent to which the three main subgroups of the sharing economy (i.e. CBIs, CBPs, and APs) are able to pursue economic performance (i.e., addressing funding, scaling, and competition challenges) and their societal mission simultaneously (Acquier et al., 2017). To cover this organizational diversity, we opt for a broad definition of the sharing economy encompassing initiatives that facilitate shared use of underutilized or easy-to-share goods and services (Belk, 2014; Botsman and Rogers, 2010; Lambert et al., 2019). Based on this definition, we construct a granular data set after conducting a comprehensive geographical mapping of the sector, enabling us to avoid the extant literature's bias towards large, centralized platforms (Sutherland and Jarrahi, 2018). We find that CBPs do not experience increased challenges relating to funding and competition. They perceive a similar scaling potential to APs, but integrate this with a societal mission to a similar extent to CBIs. These results suggest that CBPs develop distinct scaling strategies. By drawing on an in-depth case study, we extend our findings to identify the underlying mechanisms enabling CBPs to scale up while avoiding mission drift.

2. Background literature

2.1 The economics of platforms and their strategic challenges

Sharing economy platforms intermediate decentralized exchanges between peers through digital platforms (Acquier et al., 2017, p. 13). By connecting users and providers in a single virtual location, they dramatically reduce transaction costs, establish trust through rating systems, and thereby allow complete strangers to access underutilized resources (Acquier et al., 2017; Rochet and Tirole, 2003). These digital markets are associated with specific economic characteristics which result in distinct competitive dynamics.

The first characteristic is economies of scale, defined as a declining average cost as quantity increases. Digital markets require (often large) up-front fixed investments, but incur small, near-zero marginal costs (Rifkin, 2014), a characteristic that leads to more concentrated market outcomes (Crémer et al., 2019). Second, network effects, or network externalities, refer to a situation in which the value of a product or service to users depends on other users' presence or participation (Gandal, 2016).[6] For sharing economy platforms, providers' and users'

[6] Direct network effects describe a situation in which the interdependent users are from the same group, i.e., with the same relationship to the product/service (Belleflamme and Peitz, 2021). Indirect network effects describe a situation in which there is interdependence across different groups (Belleflamme and Peitz, 2021).

presence and participation increase each other's utility for a given platform service (Rochet and Tirole, 2003). This characteristic creates a tendency for markets to "tip" towards a concentrated or "winner-takes-all" outcome (Cennamo, 2021; Cennamo and Santalo, 2013). Platforms thus adopt aggressive scaling strategies, seeking to attract a critical mass of users to take advantage of this tendency (Shapiro and Varian, 1999). They initially prioritize early growth over profitability to attempt to win the market (Cennamo, 2021), and their initial investment is subsequently recouped from locked-in users (Katz and Shapiro, 1985; Shapiro and Varian, 1999).

These characteristics, amongst others, fuel strong market concentration in the digital economy (Crémer et al., 2019; Rietveld et al., 2020; Zingales and Lancieri, 2019). Successful platform competition thus involves increased pressure to scale up, as well as the ability to attract up-front investment and retain investor support during the platform's development phase (Belleflamme and Peitz, 2021).

2.2 The inherent (in)stability of CBPs?

This requirement to compete through aggressive scaling, based on large up-front investments, has been argued to present a quasi-insurmountable challenge for CBPs (Acquier et al., 2017). This perspective, which we refer to as the *inherent instability* thesis, conceptualizes CBPs as a conflicted and unstable organizational form owing to the interrelated challenges of funding, scaling, and competition. Regarding the funding challenge, it is well established that community-governed initiatives, which reallocate ownership rights away from investors (Hansmann, 2000), find it more difficult to attract funding from traditional financing sources (Chaddad and Cook, 2004; Evans and Schmalensee, 2005; Gintis, 1989). In addition, property rights are often vaguely defined, and these initiatives lack a secondary market to trade residual claims (Vitaliano, 1983), leading to undercapitalization (Nilsson, 2001; Porter and Scully, 1987). This is seen as an important disadvantage for participating in the platform economy, where large sums of risk capital are required to set standards and to benefit from network externalities (Acquier et al., 2017; Lin and Kulatilaka, 2007).

In addition to their limited access to funding, CBPs' scaling potential is further complicated by additional disadvantages. First, a major drawback of this model is that transaction costs relating to community governance increase nonlinearly with scale (Hansmann, 2000). Second, CBPs are precluded from some scaling strategies traditionally used by for-profit platforms. For example, asymmetric pricing is often used to attract "marquee users" or specific groups of users onto the platform, following a divide-and-conquer approach (Belleflamme and Peitz, 2021;

Rochet and Tirole, 2006). However, this kind of asymmetry fuels heterogeneity amongst members, which may both increase decision-making costs, and violate CBPs' egalitarian aspirations (Evans and Schmalensee, 2005; Hansmann, 2000).

These issues have competitive implications for CBPs. First, a smaller scale leads to higher operational costs owing to disadvantages in economies of scale and network benefits (Crémer et al., 2019). In addition, smaller-scale operations may make CBPs more vulnerable to envelopment by APs (Eisenmann et al., 2011). This strategy refers to more general platforms' ability to leverage their existing user base to quickly enter new markets, reducing the scope for niche competitors (Eisenmann et al., 2011).

Ultimately, the combined effect of this poor performance on funding, scaling, and competition challenges has led scholars to argue that CBPs are inherently unstable, and that as their challenges compound, they are likely to go bankrupt or convert to APs through mission drift (Acquier et al., 2017; Martin et al., 2015). This argument is used to explain the increasingly commercial orientation perceived in the sharing economy more generally (Etter et al., 2019; Frenken and Schor, 2017; Gerwe and Silva, 2020; Laurell and Sandström, 2017; Schor and Vallas, 2021). However, existing evidence is either theoretical (Acquier et al., 2017) or case study-based (Martin et al., 2015), lacking more systematic empirical examination. In addition, the literature on mission drift in the sharing economy has so far failed to engage extensively with the existing literature on hybrid organizations and mechanisms to avoid mission drift.

2.3 Mechanisms to avoid mission drift

Mission drift refers to an organization's gradual departure from its original goals, values, or objectives over time (Ebrahim et al., 2014). This topic has been widely studied (Jones, 2007; Mitzinneck and Besharov, 2019; Santos et al., 2015), leading to identification of various mechanisms to avoid it. A first set of such mechanisms relates to internal organization and how the mission is embedded in the organization's governance (Ebrahim et al., 2014; Mair et al., 2015; Wolf and Mair, 2019). To do so, the organization should define for what and to whom it is accountable (Ebrahim et al., 2014), making its interest orientation explicit (Lambert et al., 2019). This commitment can then be realized by adopting specific formal and informal practices relating to the organization's decision-making structure (Lambert et al., 2019) and rules on profit distribution (Peredo et al., 2018).

A second set of mechanisms is external and relates to the organization's creation and maintenance of stakeholder relations. Indeed, mission drift may arise from having multiple

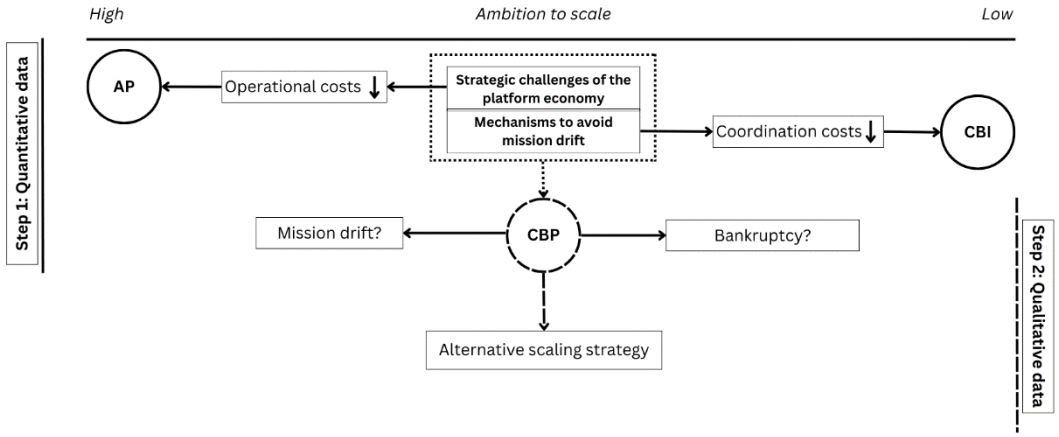
principal stakeholders, both beneficiaries and investors (Ebrahim et al., 2014; Freeman et al., 2004), with diverging expectations. Avoiding this fate requires proactive stakeholder engagement (Klein et al., 2021; Ramus and Vaccaro, 2017) and collaboration with partners that have similar values (Klein et al., 2021), through a "cooperation strategy" (Loose et al., 2006, p. 11) or the formation of meta-organizations (Bauwens et al., 2022; Vaskelainen and Münzel, 2018). Explanations for this phenomenon point both to the rationalization of mission that stakeholder identification requires (Ramus and Vaccaro, 2017), and to the external control or "guardrails" that value-driven stakeholders provide (Klein et al., 2021; Smith and Besharov, 2019). As these stakeholders value the organization's mission, collaboration allows mobilization of non-market resources (Tortia and Valentinov, 2018), including volunteers, in-kind support, and financial donations or subsidies.

Nevertheless, these mechanisms also explain why it is difficult to avoid mission drift while scaling. For example, as more funding is required to scale up, organizations are likely to be less able to embed their mission through practices that prioritize beneficiaries at the expense of investors (Borkin et al., 2019). Moreover, Acquier et al. (2017) argue that scaling requires community-governed initiatives to attract stakeholders that do not necessarily share their values, thus increasing the potential for mission drift. Avoiding mission drift will thus be especially difficult when adopting a platform-based business model with an imperative to scale up, leading us to ask whether it is at all possible.

3. Mixed-methods research design and sampling

We adopted a mixed-methods research design to seek to understand whether and how CBPs avoid inherent instability, drawing on both quantitative and qualitative data through a sequential explanatory design (Creswell, 2014). This method has been extensively described in the literature (Abowitz and Toole, 2010; Creswell, 2014; Ivankova et al., 2006; Tashakkori and Teddlie, 1998), and has been applied in organization and management theory (Battilana et al., 2015) and in economics (Gerold and Nocker, 2018). As illustrated in Fig. 1, we collected and analyzed quantitative data, and then complemented this with qualitative data.

Figure 1. Research design



The first step in our research design involves a quantitative analysis to empirically assess the challenges hypothesized to cause the instability of CBPs relative to APs and CBIs. This diversity of business model configurations and organizational characteristics is well-documented in the literature (Acquier et al., 2017; Frenken and Schor, 2017; Jiang et al., 2021; Lambert et al., 2019; Muñoz & Cohen, 2017, 2018), but the implications for performance remain under-studied (Cheng, 2016). In addition, the difficulty of conceptualizing the sharing economy results in larger samples from which it is not easy to distinguish subgroups based on organizational characteristics (Basselier et al., 2018; Vaughan and Daverio, 2017). Furthermore, the difficulties of data collection in this field have led to widespread use of convenience sampling, creating a bias towards more salient, centralized platforms (Sutherland and Jarrahi, 2018). Thus, studies discussing CBPs' performance tend to be theoretical or rely on single case studies (Acquier et al., 2017; Martin et al., 2015, 2017).

Our study pushes the boundaries of the literature by examining performance outcomes in the sharing economy using a medium-sized sample. The sampling strategy for our quantitative analysis thus sought to capture the diversity of the sharing economy. To do so, we limited our investigation to a specific geographical setting, namely the Brussels-Capital Region in Belgium. This setting was chosen for its high participation rates (ING, 2015; Vaughan and Hawksworth, 2014) and extensive policy engagement and documentation, making it a frontrunner in the sector's development (Lambert et al., 2019). This allowed us to use online repositories to conduct a comprehensive mapping exercise. For robustness and completeness, a stakeholder workshop was run, and eight in-depth stakeholder interviews were organized with managers from collaborative initiatives and incubators, and public officials. A total of 99 initiatives were validated by the stakeholders, from which 50 initiatives were selected using a maximum

variation, purposeful sampling approach (Patton, 2002). The activities of organizations in our sample were distributed across four major sectors of the sharing economy: mobility (28%), housing (26%), food (30%), and object sharing (16%). These were chosen to allow us to identify common features of organizational models across different sectors (Rihoux and Ragin, 2009). To ensure accuracy, data were collected through face-to-face interviews, but answers were recorded as numerical data, using a survey composed of closed multiple-choice questions.

The results of this quantitative analysis suggest that CBPs are perceived as having high scaling potential while being able to pursue a societal mission (see Section 4). This finding cannot be fully explained by mechanisms for avoiding mission drift identified in the extant literature, the coordination costs of which preclude ambitious scaling strategies. Moreover, CBPs are found to mobilize fewer non-market resources, and do not appear to experience increased funding challenges, pointing in the direction of an alternative scaling strategy.

The second step in our analysis thus aimed to develop a more complete, explanatory rationale for this unexpected finding through a logic of abduction, drawing on an in-depth, qualitative case study, as illustrated in Fig. 1 (Sætre and Van de Ven, 2021a). To do so, we sought a revelatory case study that would allow clear analysis of the role of digital tools in managing coordination and operational costs (Patton, 2002). The criteria used to select a suitable community-based organization were that it must 1) operate a digital platform, 2) have a strongly embedded mission, 3) leverage market and non-market resources, and 4) have a proven ability to scale up. We decided to focus on the carsharing sector because it constitutes a major part of the sharing economy, already has a substantial history, and is a well-studied empirical setting (Vaskelainen and Münzel, 2018). Studies in this context have examined mission drift (Ciulli and Kolk, 2019; Hockerts, 2010), mechanisms to avoid it (Loose et al., 2006; Münzel et al., 2018; Vaskelainen and Münzel, 2018), and the tensions involved in the process of scaling up (Bauwens et al., 2022). However, they have not explicitly considered the implications of digital platforms for reducing operational and coordination costs, thus enabling scaling strategies.

To extend the existing literature, we aimed to study an empirical setting in which community-based organizations need to scale up owing to the operational cost characteristics associated with digital platforms. To this end, we selected Partago, a cooperative that had developed a digital platform to facilitate electric carsharing for its members (see Section 5.1 for a case description). Given the centrality of partnerships to its scaling strategy, we collected data from several of its partner organizations through an embedded case study design (Yin, 2003).

Our analysis draws on two sources of data. First, nine interviews were conducted with participants, selected through a theoretical sampling approach that aimed to maximize variation in both setting and actors (Miles and Huberman, 1994). The respondents included two employees, six members (four of which currently or in the past held board seats), one manager, and four founders. This enabled us to embrace multiple viewpoints, thereby limiting interview biases such as impression management and retrospective sensemaking (Eisenhardt and Graebner, 2007). The interviews lasted between 45 minutes and three hours, and covered mission, resource mobilization, scaling strategies, and other challenges. In addition, we reviewed 63 documents as secondary data (Yin, 2003), including public information such as annual reports, and internal documents such as presentations and cost structure calculations. Our secondary data set amounted to 740 pages and five hours of video material.

4. Quantitative analysis

4.1 Variables and method

The main variables used in our analysis and their definitions are summarized in Table 1 (for descriptive statistics, see Table A1 of the Appendix). The first set of variables captures the organizational forms into which we subdivided our sample based on two dimensions. The first dimension captures whether an organization relies on a digital platform to intermediate transactions (Acquier et al., 2017), thereby excluding initiatives with a limited digital presence, such as a simple website. The second dimension captures whether an organization is community governed. This process resulted in three subcategories: AP (n = 20), CBI (n = 20), and CBP (n = 10).

The second set of variables seeks to capture how the challenges of funding, scaling, and competition, which have been argued to cause CBPs' instability, are experienced by the different sharing economy forms. For several reasons, we explicitly formulated the questions to elicit perceptual rather than factual relevance. There is a lack of comparability in absolute measures, so taking one of the subgroups as a yardstick would risk distorting the results. For example, funding challenges could not be assessed based on the amount of funding raised, as this would exclude non-market sources of funding, such as volunteers and in-kind support, which are more important in some organizational forms. Moreover, relative measures allowed us to capture the extent to which the subgroups faced different challenges as a consequence of their distinct organizational objectives.

The last set of variables seeks to capture the extent to which various organizational forms in the sharing economy are mission-driven and have mechanisms in place to avoid mission drift.

First, we examined the prevalence of mission-driven initiatives across the subgroups in our sample. To avoid relying on prosocial narratives, we defined this mission based on overlap between beneficiary and investor/decision-maker categories (Defourny and Nyssens, 2017; Lambert et al., 2019). In line with the literature, we defined the presence of a societal mission as a general interest orientation, where the beneficiary category differed from the dominant decision-maker category. Second, we assessed the mechanisms that organizations might use to address mission drift. Internal mechanisms included both the presence of asset locks and profit distribution prohibitions (Borzaga and Tortia, 2017; Peredo et al., 2018), while external mechanisms related to the ability to attract non-market resources from stakeholders, seen as evidence of stakeholders committing to the organization's mission (Klein et al., 2021; Ramus and Vaccaro, 2017; Smith and Besharov, 2019).

Table 1. Description of variables

Category	Variable name	Definition
Classification variables	Platform	Internet-based portal with tools to connect service users with service providers and/or tools for commercial transactions through the portal (Rochet and Tirole, 2003)
	Community	Coordination is either 1) non-contractual, no legal form, 2) non-monetized, defined as no commissions on transactions, no revenue from sales or services, no membership fees and no advertising revenues, or 3) non-hierarchical, defined as a democratic decision-making structure (Acquier et al., 2017)[7]
	CBP	Equal to one if community and platform are equal to one
	AP	Equal to one if community is equal to zero and platform is equal to one
	CBI	Equal to one if community is equal to one and platform is equal to zero
	Organizational form	Equal to one for APs, two for CBPs, and three for CBIs.
Scaling	Scaling potential	Sum of Internationalization and Market growth, converted to proportions through division by its maximum value.
	Internationalization	Equal to one if the question "What are the external opportunities faced by the CI?" was answered with the maximum of four options, "*Opening in new countries/continents*"
	Market growth	Equal to one if the question "What are the external opportunities faced by the CI?" was answered with the maximum of four options, "*Growing market*"

[7] Unlike Lambert et al.'s (2019) description of organizational clusters, this category of community-based governance includes both civil-society grassroots organizations and partnership social enterprises. Lambert et al.'s analysis neither differentiates between community-based organizations using digital platforms for intermediation between providers and users, nor addresses the question of strategies to overcome potential instability.

Funding		Equal to one if the question "What are the external challenges faced by the CI?" was answered with the maximum of four options, "*difficulty raising funds*"
Competition		Equal to one if the question "What are the external challenges faced by the CI?" was answered with the maximum of four options, "*strong competition in the market*"
Mission-driven	General interest	Equal to one if the beneficiary differs from the dominant decision maker, indicating an orientation towards serving other people, i.e., beneficiaries, rather than the stakeholders who control the organization, as in the case of general interest associations (Lambert et al., 2019)
	Capital interest	Equal to one if investors are both dominant decision makers and beneficiaries, where profits are distributed to the investors who also control these for-profit firms (Lambert et al., 2019)
	Mutual interest	Equal to one if stakeholders other than investors are both dominant decision makers and beneficiaries; convergence of control and benefit ensures that the organization pursues members' mutual interests, as in the case of cooperatives (Lambert et al., 2019)
Mechanisms to avoid mission drift	Asset lock	A dummy variable equal to one if allocations of residual assets are limited to organizations with similar missions, public bodies, or the community, and zero otherwise
	Profit rules	Equal to one if profit distribution is prohibited
	Non-market resources	Sum of public subsidies (dummy), private subsidies (dummy), volunteers (dummy), and in-kind support (dummy), converted to proportions through division by its maximum value.
	Volunteers	Volunteers as a proportion of the total workforce in full-time equivalents
	Donations	Public subsidies and private donations as a proportion of total turnover

Our analytical methods consisted of Pearson's chi-squared tests (appropriate when the dependent variable is a dummy or categorical variable) and logistic and ordinal logistic regressions, for the binary and categorical dependent variables respectively (Benhamou and Melot, 2018; Pearson, 1900). We report significance levels for Pearson's chi-squared test, both before and after correcting for multiple comparison testing. To correct the standard errors, we used the Holm-Bonferroni or sequential Bonferroni method, which enabled us to control for the family-wise error rate (Holm, 1979). This method is uniformly more powerful than the standard Bonferroni correction, while retaining validity (Goeman and Solari, 2014). For the logistic and ordinal logistic regressions, we used one dummy variable per organizational form, and took CBP as the omitted reference dummy. In addition, we controlled for the age of the organizations, and the sectors in which they operated. Because of the small sample size, we had

to avoid including too many control variables. Therefore, we merged the housing and object-sharing sectors into one category, since they are close sectors, with few observations from the object-sharing sector. These represented the omitted reference dummy.

4.2 Quantitative results

Tables 2 and 3 show the results of our Pearson's chi-squared tests and regressions for the set of variables, aiming to capture how the subgroups in our sample perceived the challenges that might cause instability. Surprisingly, with regard to funding challenges experienced, we find no significant differences between the three types. Moreover, the distribution of means indicates that the challenge of funding is experienced more profoundly by CBIs than by APs and CBPs. Thus, these results do not support the link between community-based governance and funding challenges for CBPs expected from the theory. The second dimension, scaling, was perceived similarly by CBPs and APs. In our regression results, this higher perceived scaling potential of CBPs is found to differ significantly from CBIs. As shown in Table 2, this difference is driven largely by platform-based initiatives' greater perceived ability to internationalize. Finally, the digital platform dimension was expected to make competition a particularly profound challenge for CBPs. However, while our results do suggest that the platform dimension is associated with a higher perception of competition as a challenge, we find no differences between the results for APs and CBPs. Indeed, the distribution of means even suggests that this challenge is perceived to be more severe among APs.

Table 2. Strategic challenges of the platform economy

Variables	**AP**	**CBP**	**CBI**	**Pearson chi-squared** (*p*-value)	**Pearson chi-squared (Holm-Bonferroni)** (*p*-value)		
					AP-CBP	AP-CBI	CBP-CBI
Resource mobilization							
Funding challenge	0.5	0.5	0.6	0.785	1.000	0.525	0.602
Scaling							
Scaling potential	1	1	0.55	0.162	1.000	0.051*	0.076*
Internationalization	0.3	0.3	0.05	**0.096***	1.000	0.037**	0.058*
Market growth	0.7	0.7	0.5	0.361	1.000	0.197	0.297
Competition							
Competition challenge	0.45	0.4	0.15	0.105	0.794	0.038**	0.127

Notes: * p < 0.10, * p < 0.05, *** p < 0.01. The *p*-values highlighted in bold are those that are still significant after correcting for multiple comparison tests using the Holm-Bonferroni method. In this method, the *p*-values for multiple comparisons are ranked in ascending order, and outcomes are only considered significant if the *p*-value of i (p_i) satisfies the condition $p_i < \alpha/(k + 1 - i)$, where α is the significance level, k is the number of comparisons,

and *i* is the rank of the *p*-value of given comparison, e.g., *i* = 1 for the smallest *p*-value. The null hypothesis of the Pearson independent test is that the variables are independently distributed, and the statistic is distributed as chi-squared.

Table 3. Logistic and ordinal logistic regressions of strategic challenges

	(1)	**(2)**	**(3)**
VARIABLES	Funding challenge	Scaling potential	Competition challenge
	(logit regression)	*(ordered logit regression)*	*(logit regression)*
Variables of interest			
AP	0.0958 (0.929)	-0.432 (1.282)	0.427 (0.853)
CBI	0.634 (0.911)	-1.490** (0.888)	-1.538* (0.986)
Control variables			
Food sector	-0.573 (0.744)	0.145 (0.688)	0.259 (0.875)
Mobility sector	-0.401 (0.882)	0.905 (1.224)	-0.592 (0.834)
Age	-0.0384 (0.0344)	-0.00586 (0.0239)	0.0142 (0.0292)
Constant	0.665 (0.727)		-0.522 (0.762)
Observations	50	50	50
Pseudo R2	0.0485	0.0776	0.0889

Notes: Robust standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01; two-tailed tests for control variables and one-tailed tests for variables of interest.

As an additional check, we looked for historical evidence of the instability of CBPs for the organizations in our sample by examining their maturity. We find that CBPs (14.3 years) are the most mature organizations in the sample, before CBIs (14.05 years) and APs (12.3 years). While these differences are not significant and survivor bias cannot be ruled out, they add to the lack of empirical support for CBPs' inherent instability.

This finding led us to wonder whether perceptions of higher scaling potential and relatively mildly experienced competition and funding challenges might be due to the increasing prevalence of mission drift among CBPs. To examine this, we determined the interest orientations of the various subgroups of the sharing economy in our sample (see Table 4), split into three categories: capital interest, mutual interest, and general interest. CBIs and CBPs are seen to fall into one category and APs into another for both capital interest and general interest orientations. CBPs are thus to a similar extent associated with the adoption of a societal mission as CBIs. In addition, we looked at changes in legal form as pointers to historical cases of mission drift in our sample. Of the four initiatives that changed legal form, none were CBPs, and none could be interpreted as a case of mission drift. The question thus becomes whether CBPs'

apparent stability can be explained through the mechanisms to address mission drift identified in the literature.

Table 4. Presence of a societal mission

Variables	**AP**	**CBP**	**CBI**	**Pearson chi-squared** (p-value)	**Pearson chi^2 (Holm-Bonferroni)** (p-value)		
					AP-CBP	AP-CBI	CBP-CBI
Interest orientation							
Capital interest	0.85	0	0.05	**0.000*** **	**0.000*** **	**0.000*** **	0.333
General interest	0.15	0.9	0.75	**0.000*** **	**0.000*** **	**0.000*** **	0.472
Mutual interest	0	0.1	0.2	0.108	0.150	0.035**	0.488

Notes: * p < 0.10, * p < 0.05, *** p < 0.01. The *p*-values highlighted in bold are those that are still significant after correcting for multiple comparison tests using the Holm-Bonferroni method. In this method, the *p*-values for multiple comparisons are ranked in ascending order, and outcomes are only considered significant if the *p*-value of i (p_i) satisfies the condition $p_i < \alpha/(k + 1 - i)$, where α is the significance level, k is the number of comparisons, and i is the rank of the *p*-value of given comparison, e.g., $i = 1$ for the smallest *p*-value. The null hypothesis of the Pearson independent test is that the variables are independently distributed, and the statistic is distributed as chi-squared.

Tables 5 and 6 show the results of the Pearson's chi-squared tests and logistic regressions for the dependent variables that capture these mechanisms. The first set of mechanisms concerns internal implementation of the mission. We find that both asset locks and prohibitions on the distribution of profits are significantly more present in organizations characterized by community-based governance: CBPs and CBIs are found to differ significantly from APs but not from each other. This is remarkable, since CBPs are part of the platform economy, in which uneven value distributions among platform participants are prevalent (Dreyer et al., 2017). The last set of mechanisms are external, capturing whether these organizations are able to connect with stakeholders that value their mission by committing non-market resources. In our regression results, we find that while situated between APs and CBIs, CBPs differ significantly from both.[8] Moreover, CBPs not only use less diverse non-market resources, but these also tend to be less important to their operations (see Table 5). For example, volunteers and donations constitute lower proportions of their total workforce and total revenues.

[8] We do not show regressions for interest orientation, as no CBP had a capital interest orientation and no AP had a mutual interest orientation.

Table 5. Mechanisms to avoid mission drift

Variables	AP	CBP	CBI	Pearson chi-squared (p-value)	Pearson chi-squared (Holm-Bonferroni) (p-value)		
					AP-CBP	AP-CBI	CBP-CBI
Internal							
Asset lock	0.05	0.7	0.75	**0.000*** **	**0.000*** **	**0.000*** **	0.770
Profit rules	0	0.5	0.65	**0.000*** **	**0.001*** **	**0.000*** **	0.429
External							
Non-market resources	0.275	0.475	0.675	**0.009*** **	0.185	**0.003*** **	0.229
Volunteers (%)	20.91	49.77	66.45	0.102	0.124	**0.022** **	0.454
Donations (%)	5.37	36.29	52.30	0.226	0.090*	0.122	0.603

Notes: * p < 0.10, * p < 0.05, *** p < 0.01. The *p*-values highlighted in bold are those that are still significant after correcting for multiple comparison tests using the Holm-Bonferroni method. In this method, the *p*-values for multiple comparisons are ranked in ascending order, and outcomes are only considered significant if the *p*-value of i (p_i) satisfies the condition $p_i < \alpha/(k + 1 - i)$, where α is the significance level, k is the number of comparisons, and i is the rank of the *p*-value of given comparison, e.g., $i = 1$ for the smallest *p*-value. The null hypothesis of the Pearson independent test is that the variables are independently distributed, and the statistic is distributed as chi-squared.

Table 6. Logistic and ordinal logistic regressions on mechanisms to avoid mission drift

Variables	(1) Asset lock *(logit model)*	(2) Profit rules *(logit model)*	(3) Non-market resources *(ordered logit model)*
Variables of interest			
AP	-3.555*** (1.462)		-1.428* (0.987)
CBI	0.335 (0.985)	0.658 (1.010)	1.467** (0.869)
Control variables			
Food sector	-1.137 (1.111)	-0.416 (1.015)	-0.131 (0.842)
Mobility sector	-3.533*** (1.076)	-2.369* (1.358)	0.109 (0.880)
Age	0.0955*** (0.0316)	0.141*** (0.0523)	-0.0159 (0.0236)
Constant	0.444 (0.921)	-1.367 (0.889)	
Observations	50	30	50
Pseudo R2	0.467	0.170	0.124

Notes: Robust standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01, two-tailed tests for control variables and one-tailed tests for variables of interest. In regression (2), the variable AP is missing because no AP has rules limiting the distribution of profits; however, this regression shows no significant difference between CBIs and CBPs (the baseline omitted variable).

5. Qualitative analysis

5.1 Case description

The analysis presented above creates an interesting puzzle. First, CBPs do not perceive increased funding challenges, but do perceive higher scaling potential relative to CBIs, while relying less on non-market resources to do so. Second, CBPs perceive a similar scaling potential to APs, while being able to prioritize different stakeholders, distribute value differently, and leverage resources through more non-market mechanisms. Both of these findings seem to point to a distinct scaling strategy, which we unravelled through an in-depth qualitative case study.

Table 7. Case study background

	Case study	**Partnerships**		
		around technology development	**with renewable energy cooperatives**	**with foreign carsharing CBPs**
Background information	**Partago**	**TMF**	**Coopstroom**	**Som Mobilitat**
General characteristics				
Core activity	Carsharing	Technology services	Renewable energy	Carsharing
Type of carsharing	Station-based round trip	NA	Station-based round trip	Station-based round trip
Fleet size	78 cars	NA	34 cars	38 cars
Member base	1,077 member users	18 member organizations	733 member users	1,500 member users
Location(s) of activity	Belgium	6 countries	Belgium	Spain
Year founded	2016	2018	2015	2017
Data collection				
Number of interviews with respondents	4	5	3	2
Secondary data	Annual reports, statutes, internal communication and documents	Annual reports, statutes, presentations, concept statement, meeting recordings	Annual reports, statutes, internal communication and documents	Annual reports, statutes, internal communication, meetings and documents

Notes: Data on fleet size and member base from 2021 for TMF, Coopstroom and Partago, and from 2020 for Som Mobilitat.

Based on a purposive sampling strategy (see Section 3), we selected Partago, a cooperative enterprise that has developed a digital platform to facilitate electric carsharing for its members (Patton, 2002). As an important part of its scaling strategy, Partago has set up partnerships enabled by its digital platforms. These platform-based partnerships include collaborations with

Som Mobiltat, a Spanish carsharing cooperative, the Mobility Factory (TMF), a European-level cooperative that collectively develops technology for local carsharing cooperatives, and Coopstroom, a renewable energy cooperative with which Partago has interoperability agreements (see Table 7).

5.2 Data collection and data analysis

In our data analysis process, we employed a logic of abduction to develop an explanatory rationale for the unexpected findings of our quantitative analysis (Sætre and Van de Ven, 2021a). Abductive reasoning aims to move from unexplained anomalies towards a plausible explanation through structured inquiry (Mithani and Kocoglu, 2021; Sætre and Van de Ven, 2021a, 2021b). Prior to our analysis, all recorded interviews were transcribed, read, and highlighted for deep familiarization. Both primary and secondary data were analyzed using NVivo software.

Our analytical process proceeded through a number of steps. Following Sætre and Van de Ven (2021a), we verified the selection criteria for our case study, and triangulated the characteristics of our case study with the existing literature (Bauwens et al., 2022; Ciulli and Kolk, 2019; Hockerts, 2010; Loose et al., 2006; Münzel et al., 2018; Nansubuga and Kowalkowski, 2021). This led us to identify both internal and external mechanisms for avoiding mission drift, which were also partially covered by our quantitative analysis. The results of this validation stage are discussed in Section 5.2.1. Our analysis then focused on how the platform dimension affected the coordination and operational costs of these mechanisms for avoiding mission drift. In particular, we find that leveraging a platform allows implementation of the same external mechanisms at reduced cost, while placing additional controls on the organization's societal mission. Specifically, we identify the dimensions of geographically dispersed collaboration, incentives for cost sharing, and low interdependence of these partnerships. We discuss these dimensions in Section 5.2.2.

5.2 Qualitative data results

Table 8 presents an overview of the data structure resulting from our qualitative analysis. Illustrative quotes in the table are used to give insights into how we defined our key concepts. In line with the existing literature, the first section of our results confirms the importance of internal and external mechanisms for avoiding mission drift. However, in the second section, our results illustrate how a platform-based business model moderates the transaction costs involved in scaling, while avoiding mission drift.

Insert Table 8 about here

5.2.1 Internal and external mechanisms to avoid mission drift

A community-based organization sets out with the goal of fulfilling a certain need for its membership through its economic activities. Some respondents echoed this mission-driven nature, pointing to the distinct means–end relationship it implies: "*That is the essence of the difference between traditional business and cooperative business. The means are lived for a higher purpose. The end can never be to have more means."* (I8)[9]

For Partago, the need it set out to fulfill for its members was a shift towards a more sustainable mobility pattern. Pursuing this mission trumps economic considerations, even though "*many competitors already say that is just madness, you will never get that profitable"* (I2). This commitment to a societal mission is internally embedded in the organization's structure, for instance by limiting the distribution of profits and assets, and putting a fixed nominal value on shares (see Table 8). This makes Partago relatively unattractive for traditional financing sources such as banks and venture capital funds. Instead, the organization seeks to mobilize resources through "*reciprocal*" (I2) relationships with its users, beneficiaries, and direct stakeholders who, in addition to these roles, may also invest financial and/or non-financial resources in the initiative:

> *With us it is also effectively that you use something from us. So it is really very essential that you both use it and invest in it, so that mutual reciprocity as a cooperative member of a cooperative is very clear to us, very clear.* (I2)
>
> *You* [the user] *have to invest with money because you…want it to exist, because you want to see social impact realized.* (I8)

Due to these overlapping roles as beneficiaries of the mission, users of the service, investors and/or decision makers, the ongoing reconciliation of financial viability and a societal mission depends on this stakeholder selection. These reciprocal relationships, can be formally embedded by implementing membership criteria or rules for partnerships.

A more informal approach serving the same goal is an ambition to be locally embedded. Indeed, as one respondent put it:

[9] Interviewees anonymized.

> *Every region, every city, every area is different, and it is very important, also very locally to have that bonding well, to know your city and to know your citizens, to know your administration, and that you can only do with people, bottom-up.* (I6)

This local embeddedness helps both to identify and to convince local stakeholders, who might value the positive externalities generated by the service, to commit resources:

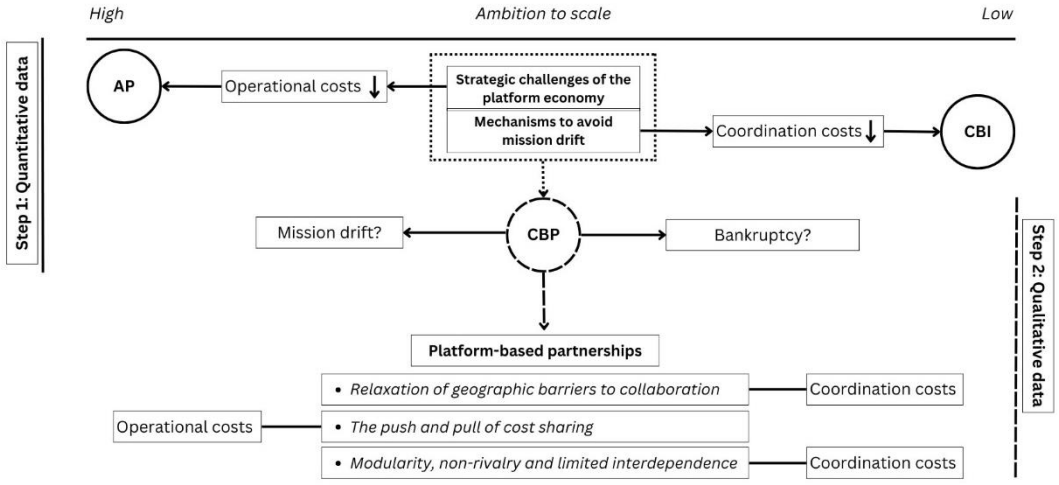
> *It is also important that people can feel that it is really for my own neighborhood that I am investing. Less parked cars on the street, less fine dust, less noise in my neighborhood. I want to be able to share an electric car in my neighborhood.* (I2)

A last approach to ensuring this value-based stakeholder selection is collaborative partnerships. Examples of collaborative partnerships that attract stakeholders (and thus resources) to the service include agreements on interoperability across carsharing operators, making the service available to members of renewable energy cooperatives, and the collective development of technology in TMF. The next section teases out how it is this capacity for partnership formation, especially, as an external mechanism to avoid mission drift, that is transformed in the platform economy.

5.2.2 Platform-based partnerships

Tracing back the rationale for Partago to engage in collaborative partnerships, we see the quintessential importance of its platform-based business model for relaxing geographical barriers and incentivizing cooperation, while limiting the coordination issues involved, as summarized in Fig. 2.

Figure 2. Alternative scaling strategy of CBPs



5.2.2.1 Relaxation of geographical barriers to collaboration

After a few years, development and maintenance of the platform was starting to become a "*serious cost"* (I2) for Partago. This led to the question, "*how can we perhaps share that with other carsharing organizations or other things that can be started up around electric carsharing?"* (I2). Such collaboration enables the sale of its intellectual property to initiatives with a similar business model and mission at the European level, providing opportunities to share future development costs and improve liquidity:

> *Then we just looked at it: actually, we're just going to accommodate that* [digital platform] *in a European cooperative. And actually our development, our apps, and actually also a bit of the business plan or how Partago is working, is because it can be accommodated and sold or made available to other cooperatives, often renewable energy cooperatives that are also interested in carsharing because it can be accommodated therein and actually collect capital there again to further develop that app.* (I2)

While this openness to collaboration may also be present in traditional CBIs, the platform-based business model greatly increases the geographical scope for potential collaborative partners. Indeed, the foundation of Som Mobilitat (see Table 7), a carsharing cooperative pursuing an almost identical mission 1,500 km away, catalyzed the foundation of TMF as a vehicle for cooperation. One respondent recalls being "*involved in looking for a platform, looking for technology to use"* (I9) during the foundation of Som Mobilitat. The two initiatives started to co-develop their platforms, each "*recording the hours*" (I9) and sharing the costs:

> *And from the beginning, somehow the idea was in the air. We should not be two owning this new platform. We should be many, and somehow share the ownership and apply the cooperative principles not only to our organizations, but also to the platform, to the technology. This was somehow the basic idea which led to the Mobility Factory.* (I9)

Rather than being merely a partnership for shared information dissemination or advocacy, these organizations thus started a collaboration involving their most important strategic resources. This was only made possible by the extremely high fit in their societal missions and organizational and decision-making structures (see Table 8). Of course, broadening the geographical scope made finding partners with a good fit easier.

5.2.2.2 The push and pull of cost sharing

The characteristics of digital platforms and the competitive pressures they generate are both pull and push factors for collaboration among community-based initiatives. Indeed, one

respondent bluntly stated that "*if we want to survive, we must collaborate"* (I4). However, collaboration is also incentivized by the specific cost characteristics involved in developing a digital platform. Respondents stressed the importance of economies of scale in their decisions to collaborate, and one gave a concrete example:

> *Each individually, the* [crowdfunding] *map cost some money, let's say €10,000. I mean, for a company like Som Mobilitat, €10,000 for a map, it's like an insane amount of money. But if we have 10% and every company pays €1,000, then it's something you could pay for a map. That's the basic ground idea of what we're building up. It is a way that the cooperative can get a lot of technology.* (I5)

Many community-based organizations might have insufficient resources to overcome entry barriers and invest in developing their own standalone apps or platforms, but were able to contribute towards the collective development of TMF.

In addition to economies of scale, there are important network effects in carsharing. For example, having a larger, interoperable fleet across operators creates a better value proposition for users. The logic of collaboratively developing these network effects was illustrated by respondents:

> *But if we can show in our app: look, if you arrive tomorrow by train in Barcelona, and you can with the same app and with the same credits drive the cars there too—and it's not just a Som Mobilitat in Barcelona, but the Netherlands is added, Germany is added, France is added, and so on—then it could go fast. I believe very strongly in that.* (I6)

These network effects are an additional incentive for pooling resources.

A last cost advantage of this collaborative scaling strategy relates to the pooling of know-how, competitive intelligence, and the learning effects they generate.

> *What I've been doing a lot lately is supporting and helping those other cooperatives in such a way that they can leapfrog the four years of experience that we have now, and very quickly get into the same business models that we've figured out.* (I6)

As explained by a respondent, TMF and its network of members benefit new initiatives by reducing the *"set up costs, first because of the software, second because of the knowledge which is shared*." (I9). This *"really improves the whole ecosystem"* (I9) and increases its resilience.

5.5.5.3 Limited interdependence, limited coordination costs

In addition to increasing the geographical scope for selecting partners and creating operational cost reduction incentives, collaboration in a platform-based business model has the advantage of low coordination costs. Coordination costs are typically one of the most challenging aspects of community-governed businesses, and are an important factor limiting their scalability. However, "*software can be used as many times as you want, if it's developed"* (I9). This non-rivalry means that interdependencies between members in the use phase of the platform are relatively limited. Indeed, developing the software individually "*doesn't make sense if it could be used by others"* (I9).

Consequently, the main governance challenge involved in this collective technology development lies in prioritizing product development. This is understandable, as the investment needed for technology development, although reduced through collaboration, is rivalrous in nature. Moreover, technological requirements differ across organizations, depending on their local context and stage of development:

> *Some small cooperatives don't have the experience that the big ones have. So you also need to find a balance between that, because what the big cooperative needs, the small ones, they don't know yet, but they are going to need it in the end as well. So how do you find the balance between that and try to keep everybody something like on the same page?* (I5)

The need to compromise affects the technological products that are ultimately developed. Indeed, respondents stressed the need for modular development and configurability to build a compromise that is useful across the local contexts of members but retains the interoperable technical infrastructure necessary to reap economies of scale:

> *We have a very modular approach. In order to realize the effects of scale, we need to have one and only one software. If not, it does not make sense to have it. Everybody has exactly the same software, but we have a large configuration possibility, so we can configure a lot of things.* (I9)

Finally, this type of collaborative partnership is typically complicated by the problem of competition among members if their operations are similar in nature (Ménard, 2022). However, in this case, the local cooperatives are geographically dispersed and locally embedded, so such competition is relatively limited.

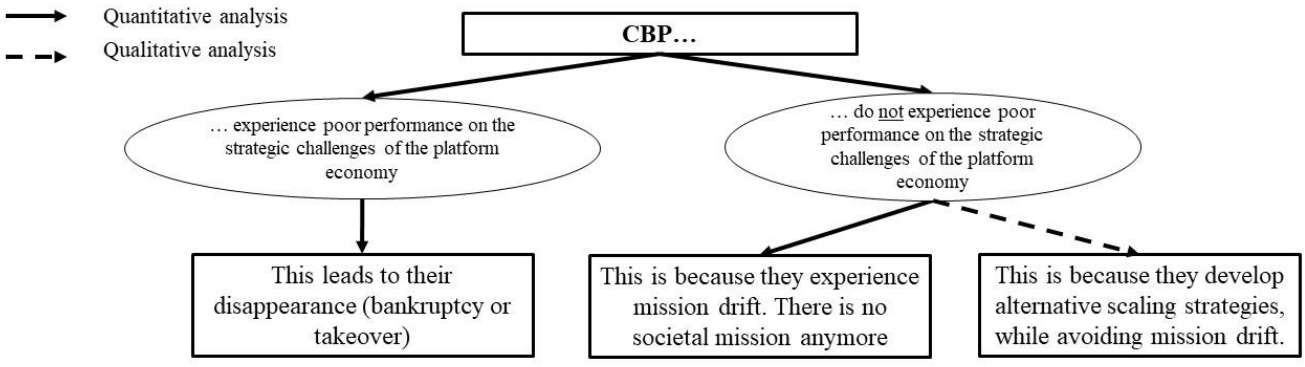
In summary, these characteristics allow CBPs to adopt a distinct scaling strategy (see Fig. 3) that trades off the cost advantages of collaborative resource pooling against the coordination costs of mechanisms to avoid mission drift identified in the previous section:

> *So the idea is to really combine these two: to have the local adaption of the local, citizen-based organization, but combine this also with the economies of scale that are needed.* (I9)

6. Discussion

In contrast to the existing literature, our quantitative analysis indicates that CBPs do not perceive increased challenges relating to funding and competition. Rather, they perceive a scaling potential greater than CBIs and similar to APs. Moreover, these initiatives offer a form of organizing that enables prioritization of different stakeholders and embeds the mission internally, through mechanisms such as asset locks and profit distribution constraints, to prevent mission drift. The qualitative analysis of our mixed-methods research design extends these findings by examining a successful case to theorize the distinct scaling strategy pursued by CBPs.

Figure 3. Inherently unstable? Overview of findings



Pathways	**Path 1 : Disappearance**	**Path 2: Mission drift**	**Path 3: Alternative scaling strategies**
Empirical evidence	Not supported	Not supported	Supported
	Quantitative data: ▪ Funding challenge ▪ Scaling potential ▪ Competition challenge ▪ Maturity ⇒ *CBP do not experience greater challenges. In addition, they are the most mature subgroup within our sample. No evidence for disappearance*	Quantitative data: ▪ Interest orientation ▪ Asset lock, Profit rules ▪ Mobilization of non-market resources ▪ Legal form changes ⇒ *No evidence for mission drift. Presence of mechanisms to prevent it.*	Qualitative data: ▪ Relaxation of geographic barriers ▪ Push and pull of cost sharing ▪ Limited interdependence, limited coordination costs ⇒ *Scaling reduces operational costs while keeping coordination costs low and reinforces the societal mission.*

Drawing on both quantitative and qualitative analyses (Creswell, 2014), this study makes a number of contributions to the literature. First, based on a representative sample of the sharing

economy sector in a specific geographical area, we provide evidence that digital platforms enable a distinct scaling strategy for community-based organizations that avoids mission drift. Our qualitative analysis reveals that this results from the development of partnerships, which may produce large reductions in operational costs, while entailing only limited increases in coordination costs, for a number of reasons. First, broadening the geographical scope for collaboration improves the likelihood of finding partners with a very similar or complementary mission. Second, the cost structure of the platform economy creates both push and pull incentives that make stakeholder collaboration both more prevalent and mutually beneficial. Lastly, the coordination costs of these efforts are limited, since geographical dispersion limits competition among members. Furthermore, digital tools are non-rival in their usage, limiting the interdependencies created among members by pooling them. The characteristics of this scaling strategy have a number of implications for existing literature.

First, the scaling strategy we identify contributes to the literature on mission drift and mechanisms to avoid it in three ways. While upscaling, these partnerships install formal and informal membership criteria regarding the mission and the embedding of the mission in the partner's governance structure. These will increase the adoption of mechanisms to avoid mission drift. In addition, such partnerships with organizations with similar missions provide an incentive for mutual monitoring among members. These characteristics have been identified in the existing literature on the way in which meta-organizations can combat mission drift (Bauwens et al., 2022; Vaskelainen and Münzel, 2018). However, the collaborative development of a digital platform, around the key strategic asset of the initiatives, will create especially high incentives for mutual monitoring, thus acting as a collective check on mission drift (Sacchetti and Tortia, 2016; Klein et al., 2021). Last, the relaxation of geographical barriers when engaging in collaborations on immaterial goods, for example around a digital platform, increases the scope from which partners can be selected. This makes it easier to increase the fit in terms of mission, governance structure, business model and values of collaborating partners. This further reduces the odds of mission drift (Logue and Grimes, 2022)

A second aspect of this scaling strategy with important implications relates to the commitment to interoperability and the focus on reducing entry barriers. This finding is surprising as digital markets are notorious for their concentrated outcomes, arising from, network effects, economies of scale, and switching costs (Crémer et al., 2019). A profit-maximizing incumbent will adopt a level of incompatibility that is suboptimal from a social welfare perspective, which allows it to lock-in stakeholders (Crémer et al., 2000; Cutolo and

Kenney, 2021). We find that CBPs can lead to more interoperability for two reasons. First, these organizations have limited ability to raise up-front investment, making aggressive scaling strategies impossible. Second, owing to their mission-driven nature, they often lack incentives to exclude competitors or lock in stakeholders. Next to its implications for competition, this collaborative development model could reduce power asymmetries between the platform and its workers, thereby avoiding precarious labor conditions in terms of income and work conditions, for example algorithmic management. Last, this collaborative technology development leads to increased modularity, which empowers and facilitates adaptation to local contexts. In doing so, we add to a literature arguing that CBP's are especially interesting partners in regional development policies and for local authorities (Mannan & Pek, 2021).

The final contribution of our study relates to the conceptualization of the sharing economy. We find that rather than representing a transient phase in the sharing economy's development (Martin et al., 2015), CBPs seem to form a stable subset of the phenomenon. Moreover, the combination of the mission-driven nature of community governance and the increased scaling potential stemming from the use of digital technologies makes CBPs a promising organizational form. Thus, we nuance the literature that explains the increased commercialization of the sharing economy by pointing towards the mission drift of CBPs (Acquier et al., 2017; Martin et al., 2015). Rather, it appears that the success of a few "superstar" APs (Autor et al., 2020), which account for a large part of the sector in terms of number of users, obscures CBPs, which are nevertheless very present (Ciulli and Kolk, 2019).

These various contributions hint to a distinct set of policy recommendations to address the specific features of CBP's within the sharing economy. Governments have so far considered dealing with the adverse consequences of the AP's business model, mainly by revising regulation (Khan, 2017). However, alternative governance arrangements could act as a substitute for policies seeking to address (abuses of) addressing market power (Hitzig, Meagher, Veiga, & Weyl, 2020). In addition, scholars have highlighted the potential for positive externalities created through collaborative governance models based on mutual cooperation among public authorities, enterprises and consumers. Moreover, these collaborations can create the incentive structures necessary to pioneer practices such as participatory life cycle assessment (Mi and Coffman, 2019).

Future research could also seek to better understand the conditionality of our findings. Although the quantitative results of our study show that across the different sectors there is

evidence of scalability for CBP that is compatible with stability and absence of mission drift, these strategies could play out differently in different sectors as a result of a variety of factors. For example, we expect the alternative scaling strategy we have identified to play out differently in sectors with very strong global versus weak local network effects. Extremely strong network effects (e.g. geographically scattered services or easy to delocalize tasks), might cause competition with APs that is too intense for CBPs (Täuscher and Kietzmann, 2017; Foramitti et al., 2020), such as for instance in the accommodation sharing sector. By contrast, network effects that are too weak or localized will reduce incentives for engaging in the partnerships that underpin the alternative scaling strategy we describe (Mello Rose, 2021), as for instance illustrated through cases within the cooperative home care or locally-based micro-tasking sharing sector (Bunders et al., 2022). In addition, the frequency with which the service is used may have an effect. Services or goods which are used irregularly are unlikely to be worth the fixed costs of participating in the governance structure for their users (Bunders et al., 2022). In these cases, it may be worth pursuing economies of scope. Overall, this research agenda could be pursued in more depth in the broader context of an emerging literature on the importance of translocal diffusion mechanisms for transformative innovations (Loorbach et al., 2020).

Next to this, future research could draw on our comparative approach to better understand the societal implications of organizational diversity within the sharing economy. For example, regarding their environmental impact, the commercial orientation of APs has been argued to lead to high rebound effects as shared goods or services add to rather than substitute for primary consumption (Zink & Geyer, 2017). Along the same lines, scholars call for a more in depth study of the sustainability outcomes of the use of digital platforms, as for instance shown in the comparison of different sharing economy business models in the tourism sector (Gössling and Michael Hall, 2019). The limitations of our study also offer pointers to avenues for future research. A first important limitation relates to the sample size for our quantitative analysis. The modest number of observations (n = 50) allowed for detailed coding of a broad set of complex organizational variables for each observation, but also affects the statistical power of our analysis. Future research might replicate this study with a larger sample. Another limitation relates to the context-specific nature of the data collection. Replicating these results in a different geographical setting might produce further insights into how the institutional environment shapes outcomes in the sharing economy.

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Table 8. Data structure and illustrative quotes

First-order concepts and illustrative quotes	Second-order concepts	Third-order concepts
Prioritization of mission over profitability *For example, a profit must be made, but our goal literally in our by-laws is not profit maximization. The goal is social impact. Profit is a prerequisite for that. I always say: cooperative business is a reversal of the means to an end relationship*. (I8) **Aim to have societal impact** *Actually, entrepreneurship is a form of activism, which is a form of economic activism. I used to hang out on the Greenpeace boats and now I hang out somewhere else. Now I am doing entrepreneurship, and for me that is also a form of activism.* (I8)	Central presence of societal mission	
Asset lock The liquidation balance remaining thereafter shall be allocated to a non-profit organization in the sustainable mobility sector to be designated by the General Assembly at the time of dissolution or thereafter (Partago Articles of Association, Article 42). **Limited profit distribution** At least five percent [of profits] shall be taken to support projects with sustainable social impact (Partago Articles of Association, Article 39). The percentage allocated to the shares can be the maximum established under the conditions for recognition as a cooperative by the National Cooperative Council (Partago Articles of Association, Article 39). **Nominal value shares**	Internal mechanisms to avoid mission drift	Internal and external mechanisms to avoid mission drift

Surely another company's real intention is to make its profits for its shareholders, or make the share price rise. Yes, we do want to give a fair return. But, for example, someone who leaves us after 10 years, he is going to get out at that 250 euros. The expectation is more of a service model than a profit model. (I3)		
Reciprocal relationships *Actually, COOPstroom does not want to make a profit on that. Because then it's the users who are going to generate profit that they themselves get back through their dividends. But of course, you have to break even*. (I3)	External mechanisms to avoid mission drift	Relaxation of geographical barriers to collaboration
Local embeddedness *The advantage that Partago had is that it is local and cooperative, so you don't feel like a number, or not just a customer in a company. You are something more, and you have the participation and the social aspect of volunteering that you are contributing to something*. (I7)		
Value-based partnerships *And so last year, in the month of May, we created the CEDAN network. That's the Cooperative Electric Carsharing Network, and so that means that all the members of citizen cooperatives for renewable energy can now drive those cars, so also the Ecopower cooperators and the Beauvent cooperative*. (I3)		
Increased geographical scope for collaboration *When we looked for a technology to use on the internet, we found one cooperative that was called Partago that was already running a small carsharing service in Belgium. We got in contact with them and we asked if they would be interested in and open to collaborating*. (I4)	Increased geographical scope for collaboration	
Consistency in formal structures The company takes the form of a cooperative society with limited liability, named Partago (Partago Articles of Association, Article 1).	Shared values as a basis for collaboration	

Under the name Som Mobilitat, the SCCL is established as a non-profit cooperative society for consumers and users (Som Mobilitat Articles of Association). The company is established under the legal form of a cooperative company with limited liability with a social purpose (Coopstroom Articles of Association, Article 1). **Consistency or complementarity in societal missions** Partago cvba aims to contribute to a sustainable society by providing mobility solutions (Partago Articles of Association, Article 3). The aim of Som Mobilitat is to promote all those actions or projects that contribute to making all movements of its members more sustainable and less polluting of the environment, by reducing the number of vehicles piled up in our cities (Som Mobilitat Articles of Association, Article 2). *We think car sharing is hugely socially important and responsible. And we actually think that's a basic service that belongs within an operation of any civic energy cooperative*. (I6) **Consistency in decision-making structure** Each partner shall have one vote, regardless of the number of shares held (Partago Articles of Association, Article 34). Each member has the right to cast one vote (Sum Mobilitat Articles of Association, Article 41). Each partner obtains one (1) vote, regardless of the number of shares he owns (Coopstroom Articles of Association, Article 11).	
Advantages of local, bottom-up initiatives *The nice thing is, if all the* [digital] *tools are there, yes, then it's mainly convincing citizens to get involved. And the local cooperatives do have access to the somewhat more motivated citizens in terms of sustainability, paying attention to their own footprint, and what have you. And in that sense that's actually very good; that becomes somewhat locally organized*. (I3)	Retained commitment to local embeddedness

The local cooperatives also have a lot of advantages because they're connected to a local ecosystem. They have a lot of collaboration with local actors, with municipalities, with other cooperatives, with social and solidarity economy, with small companies inside their region. So this somehow gives them a big advantage when you compare them to just international mobility solution providers who come with a solution, one fits all …They know what is needed for these cities. (I9)		
Externalizing costs *We were actually staffed with a fairly large share of developers, and it was expensive to continuously update the app, develop it, and so on. And the idea was actually to share that cost or to externalize it*. (I2)		
Liquidity *The side-effect that actually occurred was that we could actually sell what we had built up in a large part and actually collect euros for it. Actually capital, yes, entering Partago to enable us to continue doing what we were doing*. (I2)	Push towards collaboration	
Entry barriers *So there is a clear barrier to developing the software. It's just too big, too big for them* [TMF members]. (I9)		The push and pull of cost sharing
Cost sharing *We have more ideas. For example, one idea was to have insurance, to get a common insurance for everybody…It's just this kind of idea to share costs, which makes sense to share them among many on a European level*. (I9)	Economies of scale through cost sharing	
Reductions in cost per unit *So now it is TMF that is further developing that platform for the whole cooperative market in Europe. By doing that, the unit costs have already gone down by 30–40 percent since the beginning, so anyway that's a good thing*. (I3)		
Carsharing operators *Now the nice thing is that we joined hands with CEDAN, Coopstroom and Partago, using each other's cars*. (I6)	Creating interoperability to achieve network effects	

Renewable energy cooperatives *In the end, this is also income for us. If those cooperators drive the cars…Ecopower has sixty thousand cooperators. If there are ten thousand of them in West Flanders, they are actually advertising Coopstroom panel vans for free*. (I3) **Public actors** *We look for city councils and companies which want electric cars. And we allow them to reserve the electric car from Monday to Friday from seven till seven and they pay a fixed fee. And with this amount we cover risk. We don't lose money. We have this car and they can use this car every day, every week. As soon as it's finished, this car is open to all the community and we get an extra income if any member rents this car*. (I4)		
Sharing know-how *By the way, this is also the reason for this restriction on cooperatives. The motivation is that it allows us to share our business knowledge in this confidence. We have a higher level of confidence between the members than if they were companies and cooperatives, because of the different nature of the organization, which is not focused on profit but focused on delivery of a good service*. (I9) **Resilience** *So the strategy that we are following between Som Mobilitat, COOPdevs and the Mobility Factory basically is to share common knowledge in technology. So we decouple the responsibilities and we have a unified way of working in the different areas. So therefore it can be shared between all different cooperative enterprises, and it is more like an open source-oriented and resilient strategy*. (I5)	Learning effects and increased resilience	
Non-rival resource usage *Actually, it was clear that if you do something like this, it's better to do it on a larger scale. Whether you have a software platform for 200 cars or 5,000 cars does not matter, and that is why the Mobility Factory was founded*. (I3)	Non-rival usage, modular development	Limited interdependence,

		limited coordination costs
Diverging development priorities *And it* [prioritization of software development] *is very demanding, because of course this product is very interlinked with the business model of each local cooperative. So they can or cannot do some kind of business, or the way they want to do the business depends on the software, and everybody wants something different. That's difficult to find the common denominator of what is best to do*. (I5)		
Need for modular compromise *So the classical capitalistic approach would be I have the money, I do whatever I want. But this comes against the technological product itself, because if one year Partago has a grant and has the money so they do whatever they want to do that we might use also but might not be our first priority, then Som Mobilitat gets some money and then we do something different, then the product itself doesn't make any sense at the end of the day. Because it's not developed with a plan; it's more developed with answering small necessities from different people. So in order to avoid this, they need to agree to the common ground. It's a lot easier to then make things on top of that that don't break or make the code more complicated, because the product itself is better designed when it's like this*. (I5)		
Lack of incentive for geographical expansion *It's also not necessary that Coopstroom is the only one that becomes profitable everywhere. It's just good that from the bottom up, other initiatives that are also professionally-driven can develop similar initiatives with our help. And if that comes from below with a very important local bonding of citizens, then that's much more solid, I think*. (I6)	Geographical dispersion and local focus limits member competition	

8. Appendix

Appendix 1. Descriptive statistics

Table A1. Mean, standard deviation and range of observations

Variable	Mean	Std. Dev.	Min.	Max.
Platform	0.6	0.495	0	1
Community	0.6	0.495	0	1
CBP	0.2	0.404	0	1
AP	0.4	0.495	0	1
CBI	0.4	0.495	0	1
Organizational form	2	0.904	1	3
Scaling	0.41	0.314	0	1
Internationalization	0.2	0.404	0	1
Market growth	0.62	0.49	0	1
Funding	0.54	0.503	0	1
Competition	0.32	0.471	0	1
General interest	0.54	0.503	0	1
Capital interest	0.36	0.485	0	1
Mutual interest	0.1	0.303	0	1
Asset lock	0.46	0.503	0	1
Profit rules	0.36	0.485	0	1
Non-market resources	0.475	0.312	0	1
Volunteers	44.899	43.627	0	100
Donations	31.098	40.602	0	100

Table A2. Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Organizational form	1.000											
(2) Scaling	-0.363	1.000										
(3) Competition	-0.267	0.160	1.000									
(4) Funding	0.082	0.284	0.011	1.000								
(5) General interest	0.484	0.037	0.121	0.182	1.000							
(6) Capital interest	-0.763	0.249	-0.071	-0.099	-0.761	1.000						
(7) Mutual interest	0.333	-0.400	-0.082	-0.134	-0.440	-0.247	1.000					
(8) Asset lock	0.660	-0.025	-0.154	0.269	0.473	-0.592	0.114	1.000				
(9) Profit rules	0.575	-0.162	-0.137	-0.005	0.313	-0.480	0.198	0.706	1.000			
(10) Non-market resources	0.664	-0.340	-0.360	0.113	0.270	-0.487	0.271	0.400	0.356	1.000		
(11) Volunteers	0.641	-0.393	-0.153	0.061	0.438	-0.540	0.093	0.356	0.295	0.598	1.000	
(12) Donations	0.514	-0.133	-0.364	0.095	0.343	-0.398	0.040	0.381	0.456	0.581	0.196	1.000

Appendix 2.

Partago, the central unit of observation in our case study and founder member of the Mobility Factory, filed for bankruptcy in June 2024. This short reflection elaborates on the significance of this event for the findings in the paper.

The findings of this paper can be summarized as follows. The paper investigates community-based platforms (CBPs) within the sharing economy, specifically testing the hypothesis that they are inherently unstable and prone to bankruptcy or mission drift. Through a mixed-methods approach involving quantitative analysis of CBPs in Brussels and a qualitative case study, the authors found no evidence supporting the instability thesis. Instead, CBPs exhibit strong scaling potential similar to commercial platforms while maintaining their societal missions. These findings are based on a granular dataset of sharing economy organizations in Brussels, and are thus not necessarily invalidated by the bankruptcy of Partago. However, based on a case study involving Partago, the study has tried to identify the mechanisms allowing them to do so. It is this aspect of the study that needs to be reexamined in light of this recent bankruptcy.

Four complementary reasons were identified for the bankruptcy of Partago. First, excessive risk-taking by the administration of the cooperative. Concretely, Partago collected substantial capital through shares, crowdfunding and loans, which were used to invest in the development of their digital platform, car fleet and marketing. Even at the time of data collection the belief in an exponential growth of users amongst its board, was raised as a potential problem by interviewees. Second, Partago used a program to lease cars from its members that turned out to be problematic. Concretely, the cooperative reimbursed members for inserting their private car into the sharing scheme through this arrangement, but did so independently of whether these cars were used or not as done by Coopstroom. Moreover, it did not just reimburse the costs of usage, as is done by other carsharing organizations like Dégage. Instead, the set-up was similar to leasing agreements, in which the full cost of the car is depreciated over five years. Yet, shared cars are typically subject to low usage in the first years and become profitable in the later years of their life cycle as the cost of the cars is fully depreciated. Partago did not benefit from this effect since they had reimbursed members for the full cost of the car after about five years but did not acquire ownership of the cars afterward. Third, the COVID-19 pandemic was an important disruption to the use of and thus also the financial health of the cooperative. Fourth, the strong mechanisms to avoid mission drift, both at the level of Partago and the Mobility

Factory, limited the degrees of freedom Partago had to remedy its financial health through mission drift. Concretely, the alternative scaling strategy may have left bankruptcy as the only option for the cooperative under the aforementioned pressures on its financial health.

Yet, apart from the investments of members and the associated reputational damage for other carsharing organizations and cooperatives more broadly, the impact of this bankruptcy has been limited. Concretely, about 70% of Partago's cars have been taken over by Coopstroom. Complementing this takeover with growing supply of other carsharing organizations means that the number of shared cars in Belgium using the Mobility Factory platform never decreased. In addition, there has been a growth of about 20% in the number of international member organizations using the network over the past 2 years. More broadly, ambitions for the future of the Mobility Factory are still high and based on three avenues for growth. First, the central expansion strategy concerns the transformation of the existing network of energy cooperatives in Europe, currently 1240 organization representing 300 000 citizens, to climate cooperatives by complementing their energy activities with electric shared cars and charging infrastructure. Second, there are an increasing number of place-based collaborations with local governments to develop such climate cooperatives de novo. An example, is the Klimaatbedrijf Blankenberghe. A cooperative bringing together companies, citizens and the local municipality for the development of renewable energy installations, electric carsharing and charging infrastructure. The increasing use of electric vehicles as a demand response service, also known as vehicle-to-grid, provides an added public good that electric carsharing schemes create, which may increase the centrality of such collaborations in the future. Third, the virtuous cycle of decreasing marginal costs per car as the network scales remains in place and is lowering the bar for every additional shared car.

This summary of events related to the bankruptcy of Partago justifies both the initial research interest of our paper in the inherent instability of CBP, and the success of the alternative scaling mechanisms that the paper identified. Concretely, the network Partago has helped to catalyze has proven to be robust to its own failure, and while not without challenges, the Mobility Factory can count on a number of interesting growth opportunities for its future success.