Small firms in sustainability transitions: Opening the black box of how businesses shape transformations

Christopher Luederitz, Linda Westman, Aravind Kundurpi, Alexander J. Mercado, Janetta Mckenzie, Sarah Burch

SPROUT Lab, Geography and Environmental Management, School of Environment, University of Waterloo, Canada

Full paper for
9th International Sustainability Transitions Conference
June 11th – 14th, 2018, at the University of Manchester, UK

Abstract
The role of businesses in sustainability transitions has gained increasing attention in recent years. Conceptualizations either emphasize the potential of firms to pioneer technological innovation or display them as laggards with little incentives to accelerate transformations. Accordingly, existing research often creates dichotomist or stereotypical depictions of businesses as regime or niche actors based on their size (e.g. small versus large companies), age (start-up versus incumbent), or topical focus (environmental technologies versus social innovations). Such simplifications fail to accurately capture the diversity of ways through which private sector actors contribute to societal change. In this article, we attempt to open the black box of how firms contribute to sustainability transitions. Based on evidence from a large-*n* survey of over 1,600 SMEs in Canada and insights from in-depth interviews we examine the potential of small- and medium-sized enterprises to accelerate sustainability transitions in urban spaces. Our findings point to the need to re-conceptualize the potential of businesses in shaping sustainability transitions and understand them not only as economic players and technology innovators, but as social actors that are embedded in societal structures and influence their socio-environmental surroundings. Indeed, businesses have the potential to accelerate societal change in a variety of areas beyond the often-emphasized capacity to change markets, including transformations of internal operations (e.g. workplace, habits, business structure) and external dynamics (e.g. practices and values in the local community, policy environments). We conclude with suggestions for new avenues of research and policy-making to more effectively harness the transformational potential of small- and medium-sized enterprises.

1 Introduction

Businesses provide a key source of urgently needed innovation and transformational change to guide society toward sustainability. The role of firms as a potent actor of societal change has long been recognized through their potential to invent path-breaking innovations and generate seeds of transformation in response to government-led initiatives (Kemp et al. 1998; Schot et al. 1994; Kemp 1994). More recently, businesses have received attention as a source of self-directed sustainability-oriented solutions as they create and implement new ideas and concepts and translate them into business models that may fundamentally change entire markets (Burch et al. 2016; Loorbach et al. 2010; Schaltegger et al., 2016). At the same time, businesses are frequently portrayed as laggards with little incentives to accelerate transformations because of vested interests in the prevailing system, or because they lack the required capacities and resources to pioneer radical change (Burch et al., 2016; Geels, 2011). These conflicting characterizations have lent themselves to generalizations that conceal differences in business types and focus and produce dichotomous presentations of large and small or reactive and innovative firms. Understanding the conditions and characteristics under which businesses reinforce conventional practices and dynamics or drive sustainability-oriented innovations requires more nuanced frameworks and analyses.

The scholarship on sustainability transitions offers analytical heuristics to understand the broader dynamics governing societal reconfigurations and investigate the role of specific actors, such as businesses, in sustainability-oriented change (Markard et al., 2012; Geels and Schot 2007; Loorbach, 2010). One prominent framework in the transitions literature is the multi-level perspective, which examines the dynamic interactions at three levels of "functional relationships between actors, structures and working practices" (Grin 2010, p. 36). Businesses are frequently characterized in line with these three levels. Here, the 'landscape level' is conceived as a highly abstract and aggregated context that provides the background for business activities through, for example, economic institutions (Fischer and Newig, 2016). The 'regime level' provides stability to business activities through defined practices, cognitive routines, beliefs, regulations, norms, and values (Geels, 2011; Smith, 2007). Firms operating within regimes are often characterized as incumbents, that is, large companies that "defend existing systems and regimes" (Geels, 2011, p. 25). The level that is characterized by rapid dynamics between actors and less established rules is the 'niche' (Geels, 2005a; Smith & Raven, 2012). Businesses that experiment with innovations in niches deviate from regime practices and may be initially low-performing but can eventually outperform established routines and ideologies (Geels, 2011). Such niche experimentation is often driven by small businesses such as start-ups, organizations engaged in research and development, and large firms' spin-offs (Geels et al., 2018; Hörisch, 2015)

The key strength of the multi-level perspective in explaining sustainability transitions is the focus on the alignment of activities that unfold across different levels of structuration, yet it is also susceptible to creating and reiterating stereotypical or oversimplified representations of the role of businesses in such processes. Therefore, it is important to "deepen the conceptualization of crucial dimensions and societal groups … [and] further elaborate the role of firms and organizations" (Geels, 2018, p. 227). Following this call, we attempt to open the black box of how firms contribute to socio-technical change. Based on empirical research from two Canadian cities (Toronto and Vancouver) we provide a more nuanced understanding of the role of businesses in sustainability transitions and report on the influence of small- and medium-sized enterprises in shaping urban transformations. Building on evidence from a large-n survey of over 1,600 SMEs in Canada and qualitative material collected through in-depth interviews we examine the potential of small- and medium-sized enterprises to accelerate sustainability transitions in urban spaces.

In the next section, we review how contributions of businesses to sustainability transitions are framed, focusing in particular on conceptualizations associated with the multi-level perspective (Section 2). Next, we synthesize these contributions into a refined approach that allows for deeper analysis of the internal and external dynamics that influence businesses sustainability (Section 3). Section 4 reports on the methods of our study before we present the results in section 5. The discussion explores the results to uncover the multiple ways through which businesses contribute to sustainability transitions, including previously underexplored domains such as value formation and production of practices.

2 The role of businesses in sustainability transitions

The scholarship on sustainability transitions is concerned with the broader dynamics that occur between different levels of social structuration in processes of reconfiguring society. In recent years, scholars in this field have intensified their attention towards characteristics and contributions of the actors involved in such processes (e.g. Markard et al., 2012; Farla et al., 2012; Fischer and Newig, 2016). In the following sections, we build on such contributions, conceptualizing businesses according to the two levels of the multi-level perspective that are directly shaped by actors: regimes and niches. Landscape dynamics, by contrast, are described as inaccessible to regime actors and are shaped through indirect and complex interactions that occur over long periods of time. Accordingly, we explore businesses as regime actors and through the concept of niche experimentation before elaborating on a reoccurring dichotomy between large and small firms produced through these perspectives.

2.1 Businesses as regime actors

Businesses are one type of organization that constitute socio-technical regimes. Theories of socio-technical regimes are originally rooted in the concept of seamless webs, which explains how technological systems are fundamentally interconnected with political, economic and cultural elements of society (Hughes, 1983). From this perspective, actions of private sector organizations – innovation, engineering, technology commercialization – are continuously molded by activities in parallel societal spheres, such as scientific development, regulatory interventions, social concerns, and establishment of cultural norms (Ibid). Similarly, the concept of technological regimes captures how innovation pathways are constrained by existing engineering routines, scientific knowledge and established technological practices (Nelson & Winter, 1977; Dosi, 1982). Thus, theories on sociotechnical regimes reflect long-standing knowledge of the mutual dependence between private sector innovation and development in multiple societal domains – an understanding that is also captured in the transitions literature through the concept of co-evolution (e.g. Geels, 2005b).

As regime actors, businesses are the primary constituent of markets and industries, populating industrial networks of suppliers and producers; as a result, they provide stability to societal dynamics and functioning by constantly reproducing patters of production and consumption (e.g.

Geels, 2002; Geels, 2004). Accordingly, business activities reinforce the stability of existing systems (Turnheim & Geels, 2012; 2013), and they may also actively resist change as they have a stake in the status quo (Geels, 2014). For example, fundamental change which threaten the central business model of incumbents, such as deep decarbonisation, are likely to result in intense resistance from these firms (Penna & Geels 2012). Underling characterizations of regime actors are neoliberal logics that suggest that businesses have limited interests and ability to advance sustainability agendas because of missing incentives and externalities (i.e. business-related unsustainability does not affect their profit margin creating no necessity for actions) (van den Bergh et al., 2011; Geels, 2011).

Large incumbent firms are a focal point for studies of sustainability due to their (often considerable) economic clout, as their reorientation or uptake of niche innovation could transform mass markets (Kenis & Mathijs 2016; Geels et al., 2018; Schaltegger et al., 2016). However, large, incumbent ‘insiders’ often use their clout to hinder transitions through lobbying, information framing strategies, network mobilization, and financial incentives (EEA 2017). Incumbent firms tend to have established political relationships, access to significant resources, and a resilience to market risk; advantages that ‘outsider’ firms often lack (Ngar-yin Mah et al. 2017). Therefore, incumbent firms can significantly outspend challenger firms and technologies and can act in concert to increase their political and material influence (Hess 2012). For example, the food sector is dominated by large, multinational corporations that control the food chain through companies that are specialized in agriculture, processing, marketing, distribution, lobbying, etc. making it difficult for ‘outsiders’ to initiate far-reaching change because of cooptation (Smith, 2007; Grin, 2010). Another example of political influence are financial resources used to shape outcomes in the Michigan’s state election in 2012 (US) that included a proposal to increase the state’s renewable electricity share. The incumbent utility coalition spent $30 million on resistance strategies; niche, grassroots groups spent less than $15 million (Hess 2012).

Much attention has been paid to the opposition of these ‘insider’ incumbents, as it is unlikely that a transition will accelerate or endure without the eventual support or evolution of these large firms. Yet, incumbent responses to potential transitions are not homogeneous; there is a spectrum of responses from these actors, from resistance to investment in new, potentially disruptive technology (Steen & Weaver 2017; Lauber and Sarasini, 2015). Incumbents that see instrumental opportunities in niche technology may be more likely to support a transition (Betstill & Stevis 2015). If these firms experience enough external pressure to adapt, they are more likely to contribute to the transition rather than hinder it (Geels 2014b; Kungl & Geels 2014). For example, incumbent firms that compete directly with new market entrants in emerging sectors with regards to technology development may be a key supporter a potential regime change (Berggren et al 2015). There are also examples where incumbents cooperate, support, or drive societal change, which are characterized by committed executive leadership and strong inter-actor networks (Brown, Farrelly & Loorbach 2013; Foxon et al 2010; van den Heiligenberg et al 2017). Strong actor networks that include incumbent firms can achieve broader impact and may have a better chance of enabling long-term sustainability goals. In cases where incumbents are forced to operate in spaces where the “rules of the game” have been suspended, such as in local transition experiments, they are more open to engage with niche actors cooperatively (Heiskanen et al. 2018). However, by and large, the transitions literature indicates that incumbents often resist change and work against niche innovations that would challenge their privileged position in that regime (EEA 2017; Kenis, Bono & Mathijs 2016, Hess 2016).

2.2 Businesses as niche actors

Businesses that act as niche actors drive technological and social innovations, creating new markets or transforming existing ones, and the influence they exert on society at large can outperform governmental or nongovernmental initiatives (Geels & Schot, 2007; Cooke, 2010; Hannon et al, 2013; Wainstein & Bumpus, 2016). Related research is organized in the scholarship on strategic niche management, transition management, and entrepreneurship, with conceptualizations of business experimentation ranging from economy-wide to firm operated experimentation (Schaltegger et al., 2016; Loorbach; Loorbach & Wijsman, 2013; Schot and Geels, 2008). Business experimentation is frequently driven by new and smaller market entrants with less market power that creates arenas for niche technological developments (EEA 2017). The premise in such business-driven niche innovation is that entrepreneurial forerunners challenge existing regimes by introducing radical new solutions to sustainability problems and markets failures (Hockerts & Wustenhagen, 2010, see also Schumpeter, 1942). Accordingly, the two key activities through which niche-businesses contribute to sustainability transitions include technology commercialization and non-technical innovation driven through fundamentally new business models (see also Bolton & Hannon, 2016; Similarly, Bidmon and Knab, 2014).

Strategic niche management is concerned with how innovations are created in protected spaces (Caniëls & Romijn 2008; Schot & Geels 2008; Witkamp et al. 2011). This approach proposes that businesses operating in such spaces have the ability to develop, refine, and test innovations as they are freed from the cognitive constrains and influences that shape regime dynamics. Niche environments that provide such protections are often the result of government programs or forward-thinking incumbents that may, for example, spur the development of niches and the direction of innovation (Kemp 1994; Schot et al. 1994; Borghei & Magnusson 2016; Pinkse et al. 2014). This understanding is an outcome of a shift in characterizations of business from seeing firms as isolated, radical innovators (Kemp 1994; Teece et al. 1997), to actors that contribute and are influenced by collaborative exchange (Coenen et al. 2010; Schot & Geels 2008; Witkamp et al. 2011; Verbong et al. 2013); and, more recently, towards attempts integrate internal business model oriented change with broader societal transition dynamics (Huijben & Verbong 2013; Wainstein & Bumpus 2016; Bidmon & Knab 2018; Schilling & Logan 2008). Conceptualizations of niche-level business-driven innovation centers around three main roles: innovation focused on technology, market commercialization, as well as non-technological niche innovation (Bidmon & Knab, 2018). An example is the rapid advancement of photovoltaic-based business models, where a mature technology is spurring businesses to take up distribution for local and community solar programs, challenge existing distribution firms and confront incumbent regime configurations (Huijben & Verbong 2013). In comparison to civil society organizations, businesses that operate in niches will seek heterogenous networks to aid in the development or refinement of sustainability goals (Witkamp et al. 2011). This suggests that businesses form diverse social networks allowing for improved opportunity to build support, understand user needs, and access resources, which contributes to co-evolution and eventual re-alignment of alternative regime configurations. (Bidmon & Knab 2018; Smith & Raven 2012; Schot & Geels 2008).

Similarly, the transitions management literature frames businesses as actors with a crucial role in facilitating transitions toward sustainability at the societal and individual firm levels by actively engaging in co-evolutionary processes (Kemp and Loorbach, 2006: p.107; Loorbach et al, 2013). Through the efforts of a relatively small group of ambitious frontrunners, businesses can participate in small networks – or "transitions arenas" – where new ideas and strategies are developed for future implementation within the company or sector (Loorbach et al, 2010; Loorbach, 2007: P. 132). By developing these strategies along a "shadow track" – meaning that the firm continues regular business activities while simultaneously developing new initiatives – businesses create a space where strategic experiments can be carried out without constraint or consequence (van Buren and Loorbach, 2009; Loorbach et al, 2010). According to Loorbach and Wisjman (2013), there are four types of activities through which individual actors can influence change: strategic envisioning, tactical networking, operational innovation and reflexive monitoring and evaluation. The results of these activities can be highly diverse, including product innovations, such as the development of green roofs (Loorbach et al, 2010), and network expansion, such as the creation of formal discussion platforms for innovators (Loorbach & Wijsman, 2013). These activities are carried out by different types of firms based on their particular capabilities and resources; where one firm is best suited for strategic envisioning, another may be best at experimentation and innovation (Loorbach et al, 2010).

The sustainable entrepreneurship literature embraces a radical notion in speaking to sustainability transitions by assuming the possibility of enterprises to completely re-orient business models towards social and environmental objectives. This body of literature has only recently been connected to conceptualizations of the multi-level perspective (see Horisch, 2015; Schaltegger et al., 2016; Gibbs, 2006). This scholarship departs from the view of sustainability as a business opportunity, while simultaneously arguing that owners and managers of sustainability-oriented business are able to replace profit-seeking objectives with alternative motives for doing business; this implies new value propositions that reflect social and ecological concerns (Boons & Ludeke-Freund, 2013; Stubbs & Cocklin, 2008; Tilley & Young, 2006; Upward & Jones, 2015). Related research is often concerned with the individuals that drive innovations in business features and processes, as well as how their motivations and objectives can foster sustainability. Accordingly, sustainable entrepreneurs are defined as individuals that innovate and improve their economic viability through activities that contribute to ecological integrity and social justice, as well as foster social change (Gibbs, 2006; Schaltegger, Freund, & Hansen, 2012). Underlying entrepreneurial actions involve the profit-motivated process of discovering, creating, and exploiting opportunities that result from marked failures (Cohen & Winn, 2007; Dean & McMullen, 2007).

2.3 The dichotomy of large and small business in sustainability change

Characterizations of businesses through the multi-level perspective are helpful for understanding how actions of firms drive or constrain niche and regime dynamics, but they do less justice to their particular attributes. Indeed, a basic assumption throughout the literature is that large businesses play an important role in reinforcing the stability of socio-technical configurations, actively protecting their vested interests and obstructing change (EEA, 2017; Turnheim & Geels, 2012; Turnheim & Geels, 2013). In contrast, small businesses are considered well suited for adjusting to the dynamic and often small-scale environment of niches, introducing radical technologies that challenge regime stability, diffusing such technologies and contributing to their mainstreaming in markets (Bidmon & Knab, 2018; Smith, 2006). Underlying is the assumption that becoming a large business is the ultimate goal of every company – but this growth imperative does not exist (Bridge and O'Neill, 2013). Below, we mobilize this divide to illustrate the conceptual constraints of this dichotomy and develop conceptual approaches that allow for a more nuanced analysis.

In transition studies, incumbent firms are generally portrayed as large corporations with significant political and economic leverage over decision making, markets and supply chains (Smith, 2007; Geels, 2014; Grin, 2010). Large corporations are associated with authority and resistance to change and are generally assumed to be well established and highly integrated with the regime, in terms of regulatory practices, technological standards, and business procedures (Erlinghagen & Markard 2012). This actor has typically "vested interests, historically accumulated capabilities, established supply chain linkages and institutionalized ways of operating" (Steen & Weaver 2017, p.1073). Therefore, incumbent firms necessarily lack incentives to contribute to transitions, as by definition, a transition would translate into reducing their market power. Their activities will therefore necessarily focus on blocking the entry of potentially disruptive technology to the market (Dijk et al, 2013; Erlinghagen and Markard, 2012; ten Heuvelhof and Weijnen, 2013). In fact, incumbent firms often have the capacity to integrate potentially disruptive technologies into their operations, effectively thwarting transitions (Bergek et al 2013). When large corporations decide to support transitions, they do so by effectively engaging with transitions arenas and purposefully co-constructing sustainability-oriented visions and pathways (van Buren and Loorbach, 2009; Loorbach et al, 2010; Loorbach & Wijsman, 2013).

Small businesses, by contrast, are poised to create and operate niches and innovate path-breaking, sustainable dynamics that would shake up regime dynamics. Indeed, niche actors are generally assumed to be small companies – often start-ups and radical entrepreneurial ventures. Narratives draw on compelling imageries such as emerging 'Davids' outpacing incumbent 'Goliaths' in capturing these confrontational dynamics (Hockerts & Wustenhagen, 2010). The rationale in such studies tends to be that small companies are nimble, flexible, and unburdened by embeddedness in existing structures; they can cast off the shackles of old socio-technical configurations more readily than large organizations. Or, in other words, today's niche businesses, if successful, are tomorrow's incumbent firms.

3 Small- and medium-sized enterprises: A unique actor in sustainability transitions

The role of businesses in sustainability transitions and their contribution to developing and promoting sustainability-oriented innovation is fragmented across different scholarships. However, one particular type of business – the small- medium-size enterprise (SME) – that bridges this dichotomy between niche and regime actors is neglected in most research on sustainability transitions. SMEs are the predominant business type in most economies around the world (Ayyagari, Beck, & Demirguc-Kunt, 2007) and can reinforce regime dynamics as well as drive sustainability-oriented innovations. Indeed, SMEs have started to attract the attention from transitions scholars as both "a source of emissions and innovative sustainability solutions*";* therefore represent opportunity for adjustment on a large scale (Burch et al., 2016; Schroeder, Burch, & Rayner, 2013). Synthesizing the above review, businesses are treated as black boxes, with research either specifying what stimulus accelerates business sustainability (e.g.

government regulations or protective niches) or articulating the impact of firm-driven innovations (e.g. conform with or transform the regime). However, the inner workings of how businesses shape sustainability transitions are widely ignored. Drawing on complementary strands of research on business sustainability, we examine the role of SMEs in sustainability transitions in an effort to move beyond stereotypical assumptions and 'unbox' the internal dynamics and human dimensions inherent to firms. In doing so, we first review their potential to influence societal change before exploring the internal dynamics of SMEs and how they can act as sites of sustainability-oriented change.

3.1 The influence of SMEs on society

As demonstrated by the review above, transitions theory conceives of two chief means for businesses to contribute to transitions: acting as technology developers or supporting commercialization of new technologies. These perspectives constrain the domain of influence of firms to technology innovation and market development.

First, the role of SMEs in continuously reinforcing regime dynamics is a neglected area of research. As the most common form of business, the majority of SMEs are likely to constitute elements of production and consumption systems that are integral to dominant socio-technical configurations. Through their day-to-day operations, SMEs reproduce dynamics of supply chains, user habits, and employee practices, which most of the time serves to strengthen the incumbent system. The fluid stability of regime relies not so much on the *size* of its constituting organizations, as on the *recurrent reproduction* of rule systems by a multitude of heterogeneous organizations (see Shove & Walker, 2010) – out of which SMEs are an important and overlooked one (Burch et al., 2016).

Further, drawing on other strands of research that explores the influence of small firms on social change, it is possible to conceive of a broader spectrum of societal influence than that portrayed in the existing literature. SMEs have been shown to display engagement in a variety of social concerns both within and beyond the direct remit of their operations (Jenkins, 2006). Indeed, SMEs can contribute to activities and processes that alter the social fabric in which they are embedded. Wells (2016: p.48) propose that the term 'localism'– the strong connection of small firms to the place in which they operate – explains why small firms frequently attempt to contribute to the community in which they are located. Shrivastava and Kennelly (2013) similarly suggest that 'place-based' enterprises develop an attachment to their locale, which causes engagement in social and environmental issues. These efforts culminate in small businesses' engagement in building healthy communities and improved urban environments (Gomez et al, 2015).

More recent research has expanded the sustainable entrepreneurship literature by reconceptualising small- and medium-sized enterprises as social (as opposed to economic or rational) actors. This allows to capture the heterogeneity of objectives and values that inform business activities and the complex interactions and interrelations between businesses and their socio-environmental context (Westman et al., in review). Re-conceptualizing small- and medium-sized enterprises in this way not only allows for a more refined understanding of their motivations and actions, but also broadens our perception of their possible areas of influence in sustainability transitions

3.2 The internal dynamics of SMEs and their role in sustainability-oriented change

Literature on sustainability transitions is largely silent on the internal dynamics of businesses, their role in embedding change in local contexts, and the ways in which internal dynamics drive sustainability-oriented change. Research informed by the multi-level perspective views firms as individual change initiatives that operate in markets that select the most competitive services and products. Accordingly, substantial research has focused on the importance and mechanisms of shielding sustainability-oriented business innovation from selection pressures. A complementary view on business sustainability is the conceptualization of firms as entrepreneur-driven experimentation. The view has been primarily advocated from transitional business scholars such as entrepreneurship and research on organisational change.

Internal sustainability-related dynamics are not frequently addressed by the transitions literature, but they have been amply studied in research on environmental management of firms. The traditional approach to understanding sustainability-oriented actions of small firms is to view such actions as reactions to increasingly stringent environmental or social regulation, responses to supply chain demands, or attempts to enhance financial performance by increasing efficiency of operations (e.g. Montalvo, 2009; Williams & Schaefer, 2013). This aligns with arguments frequently entertained in the scholarship on sustainability transitions, as businesses only act on sustainability if governments legislate appropriate regulations (Kemp et al. 1998; Schot et al. 1994; Kemp 1994). Sustainability-oriented actions are often described as measures that require time and capital resources beyond the capacity of small firms (Granek & Hassanali, 2006; Hansen & Klewitz, 2012), that produce marginal financial benefits (Aragón-Correa et al, 2008; Klewitz et al, 2012; Moore & Manring, 2009), and that may incite sceptical or resistant attitudes (Ates & Bititci 2011; Chassé & Boiral, 2017). External support and network collaboration is often seen as necessary to encourage small firms to adopt environmental management (Luken & Navratil, 2004; Clement & Hansen, 2003; Parker & Rowlands, 2007). Such collaboration can also contribute to diffusing sustainability-oriented practices, such as cleaner production systems, throughout markets and supply chains (Halila, 2007; Hansen and Klewitz, 2012; Klewitz et al, 2012; Wheeler et al, 2005). The environmental management approach to business sustainability is constrained by its focus on incremental improvements (Könnölä & Unruh, 2007) – thus, it has played a limited role in theories about the role of businesses in initiating system-wide sustainability transitions.

While the connections between research on sustainable business models and sustainability transitions are beginning to emerge (Bolton & Hannon, 2016), the links between shifts in internal business operations (practices, value systems, decision-making structures) and broader patters of societal change are not clearly established. The business model represents the enterprise's purpose and logic and depending on internal and external influences such as the owner's objectives, or the context it might differ substantially between enterprises (Stubbs & Cocklin, 2008). Changes in the business model can have substantial effects on how producers and customers interact, and on regional sustainability (Di Gregorio, 2017). While a change in the business model can originate from different areas and might impact the three elements at various degrees, its drivers can be grouped as technological, social, and organizational (Boons & Lüdeke-Freund, 2013). For example, technological drivers seem to predominately influence the use of natural resources. Similarly, social drivers mostly focus on the same business model elements but target changes in human behavior. Organizational drivers focus on the enterprise purpose and could fundamentally change how enterprises go about doing business (see for example Bocken et al., 2014).

The transformational changes that occur as a result of internal business behaviour also have an impact on societal values. Though it is commonly argued that the fundamental purpose of a business is to create economic value, the traditional process of value creation often causes negative socio-economic impacts in the area surrounding the firm (Boons, 2009) On the contrary, many business are acting in ways that link their ecological and social values with economic values (Moore & Manring, 2009; 2009). This creation of alternative value systems can have significant repercussions on sustainability transformations, as how a firm defines ecological value effects their perception of their firm's ecological impacts, as well as how they should respond to them (Boons, 2009: p.14). This reconceptualization of companies responsibility as a "strategic" activity-incorporating social, economic and ecological dimensions-businesses gain the ability to create shared value for themselves and their society simultaneously (Loorbach & Wijsman, 2013; Porter & Kramer, 2006). These values are defined, maintained and changed by a firm's actions, and over time become ingrained within the organizational routines of the firm (Boons, 2009) For example, SMEs have the capacity to influence work conditions and wellbeing of their employees, as illustrated by their frequent adoption of policies to improve employee satisfaction (Lawrence et al, 2006; Masurel, 2006). Small firms have also been observed to address emerging social issues through strategies to provide employment opportunities to socially and economically excluded groups (B-Lab, 2018; Social Enterprise Toronto, 2017).

4 Methods

This research is based on empirical data gathered through a large-*n* survey and qualitative data collected through interviews with small- and medium-size enterprises (SMEs) in Toronto and Vancouver, Canada (Ethics Approval ORE #22024). In line with common praxis in research and policy, we define SMEs by the number of paid employees. Canada, like most counties, use a cutoff point of 499 employees as the upper limit defining such a business (Statistics Canada, 2016). SMEs is by far the most common form of business in Canada, as 99.7 percent of all Canadian businesses have less than 500 employees. Toronto and Vancouver are among the most populated urban centers in Canada and major hubs of SME activity (269,504 SMEs are registered within the Greater Area of Toronto and 183,940 in Metro Vancouver) (Statistics Canada, 2016; 2017).

The survey was pretested with employees and owners of SMEs and was administered in July and August 2017 through an online interface to which respondents were invited via email. The findings reported in this article consider 15 questions (see appendix A). In total, we collected 1,695 completed surveys (1,238 in Toronto, 457 in Vancouver), of which 12 randomly selected participants were given a $50 CAD gift card. Company selection was based on entries in publicly available municipal records, the online database Canadian Company Capabilities managed by Innovation Canada, and panel data managed by the consultancy company AskingCanadians. Across these sampling strategies and cities, we yielded a cumulative respondent rate of 4.8 percent.

Interview data was collected between March and May 2018 through face-to-face or remote telephone conversations that on average lasted 50min. The interview guide was pretested with employees and owners of SMEs and respondents and relevant participants were selected through purposeful sampling of businesses that would provide information-rich cases (see Appendix B). Purposeful sampling is particularly suitable for this research due to its exploratory nature and the emerging research field it contributes to. Our sampling strategy focused on businesses that can offer interesting insights into their contribution to sustainability transitions (Patton, 2015; Flyvbjerg, 2005). In total 40 interviews infromed this study, of which all were audio recorded and transcribed while the identity of interview participants is kept confidential.

The qualitative data was analysed through a systematic search used to to identify patterns related with sustainability-oriented change. Through this search we looked for commonalities acorss all transcripts, which were matched with mechanisms indicated through our literature review. In the next section we present the results of the survey before we discuss the findings in combination with the data gathered through the interviews.

5 Results

The survey results are organized according to the ways in which businesses support the sustainability of their communities (external influence) as well as how they change their own operation and practices (internal influence). Survey results are presented as percentages, referring to the share of participants that competed the respective questions (followed by the total number presented in parentheses).

5.1 External influence

External influence covers the areas that are pertinent to a business outside of their immediate control, such as regulations, markets trends, business associations, and the local community. The majority of respondents in our survey, 78.8 percent (1333), stated that they actively try to influence areas that lay outside or beyond the immediate influence of an individual business, see Table 1. For example, 43 percent (726) of businesses undertake measures to influence the habits of their clients or the way their services or product are being used. Market trends such as spread of new products are the second most frequently mentioned area that SMEs try to influence followed by efforts to shape the local community in which a business is embedded (35 percent (588) and 29 percent (483), respectively). Other areas that SMEs try to change include policy and regulations as well as business associations (both ≤ 27 percent (462)).

Table 1: Perceived area of influence of SMEs in our survey

Which of the following does your company try to influence or change?	%
User/consumer habits	43
Markets	35
The local community	29
Policy	27
Business Associations	20
None of the above	21

Activities that correspond to the aspirations of SMEs to exert external influence may be derived from the area in which they drive innovations. Such activities include efforts that target new markets, partnerships and actions within the company to lay the groundwork for innovation, see table 2. The most frequently mentioned activity that SMEs in our sample performed within the last year included introducing new products or services (59 percent, 990), launching new marketing initiatives (46 percent, 774), and building new types of relationships with external partners (37 percent, 630). Activities that may increase external influence through internal changes were less often performed by SMEs in our sample (e.g. research and development, changes to the business structure, and procurement were the least often mentioned (all below 33 percent, 557).

Table 2: Activities performed by SMEs within the last year

Which of the following activities has your company performed in the past 12 months?	%
Introduction of new products or services	59
Introduction of new marketing concepts or strategies	46
Establishment of new forms of external relationships	37
Investment in research and development (R&D)	31
Introduction of new business practices or new organization of work responsibilities	30
Acquisition of advanced machinery, equipment and software used for innovation	29

Networking with a range of different partners is important to most SMEs in our sample (on average 71 percent (1689), results not shown). Such networking includes the importance to participate in business networks (76 percent, 1285), build good relations in the local area (71 percent, 1202), collaborate with other companies (73 percent, 1236), and develop partnerships with non-business organizations (62 percent, 1047), see table 3). With the exception of building good relations in the local area, which 23 percent (389) SMEs considered extremely important, 18 percent (297) or fewer respondents ranked the other options similarly.

Table 3: Importance to network with other organizations

How important are the following external relations to your company?	%
How important is it for your company to participate in business networks?	76
How important is it for your company to build good relations in your local area?	71
How important is it for your company to collaborate with other companies?	73
How important is it for your company to collaborate with other companies?	62
How important is it for your company to collaborate with other organizations?	62

5.2 Internal change

SMEs can influence the environmental sustainability of their own operations through various ways including procurement, employee responsibility and behavior, suppliers, facility management, waste, and work environment. Such internal changes are perceived by SME with varying importance and implementation success differs across businesses. For example, more than half of the surveyed SMEs (57 percent, 949) consider environmentally friendly procurement as important out of which 35 percent (589) have performed related changes. Waste reduction and encouraging environmentally friendly employee behavior is considered important to the majority of SMEs (75 percent (1273) and 72 percent (1210), respectively) out of which 76 percent (955) and 82 percent (987) have implemented such measures. Half of the surveyed businesses ranked retrofitting of buildings and identifying suppliers that are more environmentally friendly as important (56 percent (936) and 55 percent (917) respectively) of which half have conducted such change (56 percent (547) 55 percent (506), respectively). A measure that could improve a business environmental performance but received the lowest importance ranking (33 percent (561)) was incorporating sustainability related issues into the job descriptions of an employee (see table 4).

Table 4: Importance of environmental measures in surveyed companies

How important are the following external relations to your company?	%
Purchase new equipment and services	57
Have you done it?	35
Reduce your company's waste production	75
Have you done it?	35
Designate an employee or team to address sustainability	33
Have you done it?	76
Change your supplier(s) to one that is more environmentally friendly	55
Have you done it?	55
Change employee behavior to be more environmentally friendly	72
Have you done it?	82
Retrofit buildings	56
Have you done it?	59

SMEs can influence the social sustainability of their own operations through various ways including improvements that focus on employee well-being and the work environment, social responsible procurement, and community outreach. Such improvements are viewed by the surveyed SMEs with varying importance and implementation success across businesses (see table 5). For example, fostering employee well-being and creating and inclusive work environment was seen as important by 86 (1438) and 74percent (1236) of survey businesses while 79 (1129) and 82 percent (1002) had implemented related measures. Participating in community outreach was sees as similar important and so was implementation success (70 (1174) percent and 76 percent (894), respectively). The measure that was only seen as important by half of the businesses (53 percent (876)) was the support of social justice through purchasing practices while 60 percent (518) of businesses indicated to have done related activities.

Table 5: Importance of social measures in surveyed businesses

How important are the following external relations to your company?	%
Foster employee well-being	86
Have you done it?	79
Create an inclusive work environment	74
Have you done it?	82
Support social justice through purchasing practices	53
Have you done it?	60
Participate in community outreach	70

Have you done it?	76

Asked to describe their business growth trajectory, most respondents to our survey suggested to slow increase (50 percent (851)). Other trajectories included rapidly growing (18 percent, (299)), neither growing nor declining (19 percent, (317)), and slowly or rapidly declining (10 percent, (168)) (see table 6).

Table 6: Current growth trajectory of surveyed businesses

How would you describe your company's current growth trajectory?	
Growing rapidly	18
Growing slowly	50
Neither growing nor declining	20
Slowly declining	8
Rapidly declining	1
None of the above	1
I don't know	2

6 Discussion

Our findings point to the need to broaden existing conceptualizations of how businesses shape sustainability transformations. Opening the black-box of this actor requires to move beyond viewing this actor solely as economic player and technology innovator and appreciating businesses as social actors that are embedded in social structures and aspire to influence their socio-environmental surroundings. Existing transition studies fail to accurately capture the diversity of ways through which private firms contribute to or impede sustainability transitions. From the perspective of businesses as the actor of interest, various new possibilities emerge through which SMEs can intervene within their own business and use their business to drive societal change.

6.1 How businesses act as nucleus of sustainability

Our first observation related to the treatment of businesses in the sustainability transitions literature is the notable absence of attention to internal dynamics of firms. Particularly serious is the lack of attention to practices and processes of value formation.

6.1.1 Business practices as a leverage point for sustainability transitions

A domain that is fundamentally overlooked in current transition studies is the production and re-production of practices in day-to-day operations of firms. This may be associated with early theories about technological change (Nelson & Winter, 1982) that recognized knowledge as underpinning technological development, yet overlooked how knowledge is created and used in organizational and social change. Similarly, scholarship on sustainability transitions emphasizes dynamics of socio-technical regimes over entrepreneurial practices and behaviors, observing that "firms have limited room for unilateral manoeuvre" (Smith et al 2005, p.1491; Rip and Kemp 1998). This has diverted attention away from the inner workings of organizational processes and business practices although the significance to agency (i.e. the capacity of actors to take actions) has been reiterated in contributions to sustainability transition (Smith et al., 2005; Avelino et al., 2016; Fischer and Newig, 2016). In other areas, aside from the private sector, this has led to research on the role of every-day practices, behavior, and relations between actors, technology and society in producing and reproducing socio-technical regimes (McMeekin & Southerton, 2012; Shove & Walker, 2007; Shove & Walker, 2010). Shove and Walker (2007; 2010) call for a return to the social dimensions of transitions and a greater appreciation of how practices constitute the building blocks of socio-technical reconfigurations. While this has been primarily applied to practices in civil society, for example in relation to cooking (Spaargaren, 2003), or to everyday habits and comforts of individuals, such as in relation to showering (Allon & Sofoulis, 2010; Shove, 2003), we argue based on our research that this conceptualization is also helpful to shift attention to organizational dimensions of businesses to understand how SMEs can support or impede sustainability transitions.

SME can act as nuclei of change by restructuring their internal practices, operations, and ways of doing things. The results of our data show that SMEs often attempt to realize sustainability-oriented change by altering internal practices. This includes actions such as constructing inclusive work environments or promoting environmental friendly staff behavior (Table 4). Changing "ways of doing things" – employee relations, office behavior, consumer habits –may enable the scale of 'recurrent reproduction' required to stabilize new socio-technical configurations (Shove & Walker, 2010). As stated by Shove and Walker (2010: p.474-475), "when practices change they do so as an emergent outcome of the actions and inactions of all (including materials and infrastructures, not only humans) involved." While, understandably, research on sustainability transitions often galvanizes around possibilities for major (technology-induced) breakthroughs, the role of incrementalism is underappreciated (Geels, 2018). The seemingly subtle effects of independent micro-actions may play a key role in inducing substantial shifts in business practices, rather than a small number of large-scale projects (Zollo et al, 2013).

Our quantitative data demonstrates that the form of sustainability-oriented initiatives most commonly adopted by SMEs in our sample consisted of efforts to alter employee behavior (see table 3 and 4). Our qualitative data matches this observation by illustrating how alterations of employee or customer behavior act as the building blocks of change. For example, a interviewed grocery delivery business has successively shifted from a focus on local, organic supply to an entirely waste and packaging-free logistics model. The construction of this business model has involved adoption of innovative forms of technology (for example, experimenting with substituting Styrofoam insulation for compostable mushroom fiber). However, the dominant forms of change have been organizational and behavioral. For example, introducing re-usable produce bags involves introduction of new handling procedures for washing and storage. Reducing emissions from shipping requires sophisticated logistics planning to make sure every trip maximizes the number of deliveries while minimizing travel distance. Management of food waste involved setting up composting units and creating procedures for separating and depositing all organic waste. Here, norms and customs are key to realizing sustainability-oriented change, implemented through progressive and continuous adoption of alterations in employee practices.

6.1.2 Business values as a leverage point for sustainability transitions

The importance of values and beliefs have long been recognized as providing stability to regimes, but less attention has been focused on the ways in which value shifts enable and drive business innovations in sustainability transitions. Because regimes shifts are the focal point of related research, businesses are often portrayed as single units with fixed objectives. Such black-boxing has occurred in other fields of research as well; for example, the early international relations literature treated nations as unified entities with observable preferences engaged in overt power struggles – internal conflict, coalitions, the multiplicity of voices and heterogeneity of actors that constitute the complexity of a country were rendered invisible (c.f. Carr, 1964; Wolf, 2002). Similarly, by assuming that business motivations can be represented and understood through, for example, their size or their position in a particular sector, the transition literature obscures the complex interactions between interests and ideas involved in adopting and shifting objectives of firms.

Indeed, transitions research typically depicts companies in traditional industries as regime incumbents (Geels, 2014; Turnheim & Geels, 2012; 2013). In the context of low carbon transitions, regime incumbents include fossil fuel dependent industries, such as energy firms and heavy manufacturing companies. These businesses are perceived to protect vested interests of the sector (EEA 2017; Kenis, Bono & Mathijs 2016, Hess 2016), while innovative forerunners (start-ups and entrepreneurs) attempt to topple entrenched structures of power by diffusing low-carbon technologies. These narratives constitute gross simplifications of the messy and conflicting reality of doing business. Companies, even small ones, are multidimensional organizations made up of individuals, while objectives of businesses are an expression of these collective interests, as well as a reflection of the socio-environmental landscape in which firms are embedded (Whetten, 2007; Westman, et al., under review).

The results of our survey demonstrate how SMEs embrace a multitude of social objectives in their adoption of sustainability-oriented actions – many of which are likely to have no direct bearing on the economic pursuits of these firms. For example, fostering employee well-being was seen as important by the majority of the firms surveyed in our study (table 3). Such social missions are likely derived from values or social relations of individuals in the firm, rather than being regulations induced or a response to the sector, size of the firm, or profit seeking behavior. Conversations with SMEs also indicate that the personal values of owners or managers is one of the strongest drivers behind sustainability-oriented actions in small- and medium-sized enterprises. These results illustrate how social and environmental change derives through internal dynamics of companies. For example, energy utilities would typically be considered regime incumbents in low-carbon transition theory. However, an energy utility may be populated by individuals with strong social and environmental engagement; interactions that play out within the firm will determine whether or not this particular company may in fact act as a nucleus of change.

Turning to cases from our study, we found multiple examples of companies that have undergone shifts in business objectives and reoriented their operations according to this change. One example is a medium-sized contracting firm, which since its foundation has been managed as what transition scholars would characterize as a traditional company which is primarily concerned with profit maximization. After a change in CEO as well as years of tackling internal conflict, the leadership of this firm embarked on a path of experimentation aiming to create 'meaningful' employment. This process has involved drawing on academic literature describing alternative, non-hierarchical governing arrangements (e.g. the TEAL decision making model – a non-hierarchical organizational model based on principles of fluidity, decentralization and self-management), introduction of decentralized management systems, and diffusion of decision-making power. The introduction of these systems was realized through a bottom-up process, in which individual teams were allowed to experiment with a variety of strategies and procedures, out of which the most successful ones have diffused throughout the firm. Notable about this shift is not only the completely altered distribution of authority, but the parallel transition to a new business paradigm. Alongside the new decision-making structure, the company has introduced a Stewardship Council, in charge of continuously seeking to improve the social impact of the firm. A visible impact of these initiatives is an increased community engagement (expressed through donations, volunteering, etc.), but beneath the surface, the organization has built on the principles that gave rise to this change, creating a new system of norms and values. This relates to opportunities of self-realization, freedom and responsibility, which according to our respondents translates into genuine engagement, passion and rigorous scrutiny of organizational goals. People working in this company are individually re-defining what it means to be employed, what a business ought to do, and how this should be done. Thus, the seeds of sustainability-oriented change originate in individual ideas and micro-level interactions, with the potential of challenging broader patterns of behavior within this industrial sector.

6.2 Businesses shape diverse sustainability transitions pathways

SMEs contribute through diverse and divergent pathways to sustainability transitions. Current research often emphasizes the opportunity for businesses to contribute to change by commercializing technology and advancing the development of the green economy (e.g. Bidmon and Knab, 2014). The results of our research – in combination with previous studies (Westman et al. under review) – show that such conceptualizations constrain our understanding of how SMEs can advance social dimensions of change. In particular, we draw attention to the ability of businesses to influence habits, norms and social identities, thereby contributing to production of new systems of rules (regulative, normative and cognitive) and stabilization of alternative regime configurations (Geels, 2002; Geels, 2004).

6.2.1 Business contributions to transition pathways through alteration of practices

SMEs that aspire to contribute and shape sustainability do so beyond their own premises. Our results illustrate the various ways through which businesses contribute to processes that unfold beyond the direct remit of their own operations (78.8 percent of surveyed SMEs have realized external change, Table 1). These findings challenge conceptualizations of SMEs as passive, reactive or even resistant with regards to social and environmental engagement (Ates & Bititci 2011; Chassé & Boiral, 2017). Building on the approach of viewing practices as the building blocks of regimes (introduced in section 6.1.1), we draw attention to the ability of SMEs to generate sustainability-oriented change by shifting habits. In our survey, 43% of surveyed businesses stated that they try to influence or change consumer habits or practices (Table 1). Similarly, a large share of our surveyed firms had introduced innovations in the form of new products and marketing strategies (Table 2). Such attempts can be narrowly construed in terms of technology development (e.g. Smith & Raven 2012; Schot & Geels 2008; Huijben & Verbong 2013), but this focus downplays the ability of SMEs to alter habits, routines, and relations between individuals and physical artefacts.

For example, another grocery business that was interviewed for this study illustrated the possibilities of realizing waste-free grocery stores. While this business model involves application of new forms of technology (such as digital labelling systems that allows customers to re-use the same container without weighing it every time), representatives of the company point to shifts in the *practices* of grocery shopping as a more important aspect of change involved in establishing and diffusing this business model. The company is actively engaged in spreading information about alternative habits of purchasing food, such as bringing your own containers to the store, renting re-usable containers from the business, or buying perishable goods less often (to allow for better planning in terms of bringing containers to the store). Here, the grocery store is one actor involved in creating new norms and understandings of what every-day shopping involves. Thus, the business constitutes a key actor involved in constructing new rule sets (habits, customs, understandings) around this niche practice, which are interconnected with practices in multiple domains, such as home food storage and form/frequency of transportation to and from the grocery store.

6.2.2 Business contributions to transition pathways through processes of value formation

While involvement in development of new products and consumer cultures is a recognized (albeit marginalized) form of contribution of firms to sustainability transitions, the ability of firms to build social identities and discourses is often overlooked by this literature. In our survey, around a third of the participating companies responded that they try to influence or change the local community (Table 1). Mechanisms through which such influence is exerted were illustrated through interviews with companies.

Interviewed businesses presented numerous illustrations of how shifting business objectives can contribute to collective alterations in values. One example of this are the business cultures created in different start-up incubators. In our study, we interviewed managers of companies that are based out of incubator programs. On the one hand, this included ‘traditional’ incubator spaces, geared towards supporting technology start-ups. The perception of success in these innovation clusters is straight-forward: attracting capital and investment, realizing rapid growth, and market expansion (with unicorns - startups that are privately owned and valued over 1 billion USD - representing the ultimate achievement). Thus, these spaces contribute to the social construction of ideals centered around profit maximization; a social environment that is supported by an ecosystem of angel investors, venture capitalists and policy strategies geared to enable technology innovation and economic growth. On the other hand, our sample included social innovation clusters, geared explicitly to supporting enterprises with a social and environmental impact. Organizations based in these spaces communicate radically different versions of success. While many of the start-ups that grow out of these efforts are for-profit, and some are indeed growth-oriented and become immensely profitable, this is not the ultimate aim of most of the entrepreneurs based in these clusters. Our respondents describe a culture that revolves around social missions, where achievement is calculated as extensiveness and quality of socio-environmental impact. These ideals are not imposed on individuals that choose to be based within these incubator spaces; rather, this mindset is co-constructed through daily interactions and communication centered around semi-shared goals. Enterprises are thereby contributing to the incremental construction of alternative value systems, which are successively diffused through their interactions with customers, clients and in their daily lives.

Finally, collaboration with other actors constitutes a powerful pathway through which practices and ideas diffuse through society. In our survey, the majority of the participating companies stated that they see collaboration with either other companies, civil society or government representatives as important (Table 3). Our interviews demonstrate how network formation among like-minded enterprises, civil society organizations and individuals result in diffusion of both practices and ideals. For example, B-corporations that are part of a local community use regular interactions to share best practices and ideas and collectively redefine the boundaries between business endeavors and social and environmental engagement. Respondents from our study communicated that the B-corporation community is beginning to create shared norms around multiple aspects of doing business, for example in relation to employee engagement and wellbeing. These efforts have, in turn, translated into higher employee retention and ability to attract talent, as knowledge about this particular business culture diffuses through the workforce. Through “value-based recruiting” (practiced by multiple respondents of this study), businesses search for prospective employees with aligned ethical and social ideals, thereby successively strengthening these emergent value systems. Workshops, conferences, newsletter, social media campaigns and other outreach activities amplify the effect of these activities, contributing to a slow process of collective redefinition of the meaning and purpose of private sector employment.

6.3 Transformational potential of SMEs to accelerate sustainability transitions

Businesses have the potential to shape a variety of areas including transformations of internal operations and external dynamics. Indeed, our results illustrate the capacity of businesses to shape sustainability transitions in ways that not only leverage their internal practice and values to create more sustainable operations but actively contribute to transitions pathways that have the potential to transform societies toward sustainability (see table 7). Such internal changes may focus on the workplace, habits, and business organization, as well as externally contribute to supporting the local community or influencing practices of other firms. This conceptualization moves beyond the often-emphasized influence of firms on markets and technology (Schaltegger et al., 2016; Geels, 2011) and allows for a more nuanced and comprehensives view of businesses as social actor (Westmann et al., under review).

Table 7: Businesses shape sustainability transformations through influencing internal and external dynamics

Business…	**… leverage changes in practices…**	**…leverage changes in values…**
…influence internal operations…	…through shaping internal interactions between people, their daily work, and between individuals and knowledge…	… through shaping the goals that inform the direction and purpose (i.e. what the business ought to do) as well as the underling principals that inform its operation (i.e. what it should do)….
	…to contribute to pathways toward sustainability…	***…to contribute to pathways toward sustainability…***
…influence external dynamics…	…through shaping ‘the way how people do things’, influencing the habits and routines of their customers as well as relations between individuals and physical artefacts…	… through shaping ideas, social identities, discourses, that actively form the paradigm that guides societal actions and orient belief systems.

7 Conclusions

This contribution has offered and attempt to open the block box of businesses and examined how they shape transformations toward sustainability. Research on sustainability transitions has developed a useful heuristic for better understanding the dynamics that influence societal reconfigurations. However, emphasis of related research on the context in which actors, specifically businesses, are embedded (i.e. socio-technical regimes) has resulted in stereotypical and dichotomist characterizations of firm behavior and the ways through which they contribute to sustainability transitions. Building on previous research on the role of businesses in sustainability transformations we developed a more nuanced perspective for examining the capacity of small- and medium-sized enterprises to engage in and accelerate societal change. Based on evidence gathered through surveys and interviews we explored how businesses can leverage changes in values and practices to contribute to pathways to sustainability. Enriched with illustrative examples, we provided compelling cases for acknowledging the myriad of motivations that drive businesses sustainability actions and capacitate this actor to contribute a multitude of transition pathways. This opens the often-opaque conceptualization of firms in sustainability transitions and helps develop a better understanding of the transformational potential of businesses, including, how they shape internal operations and external dynamics.

We invite future research to look beyond the often-repeated notions of business contributions to transitions through technology innovation and green growth, actively exploring potential avenues for how this actor is or *can* accelerate sustainability transformations. This article has laid the groundwork by examining a small set of areas in which businesses are key drivers of societal change. Foundational to this endeavor was diverting from the bird-eye view of the multi-level perspective and reconceptualizing the role businesses can potentially play, considering the internal dynamics and human dimensions inherent to firms. Indeed, our analysis shows that businesses are one of the key actor involved in the social construction of alternative practices and value systems. However, small businesses have been doing this all along – they have simply been acting beyond the academic radar. Accordingly, we call for further developing alternative conceptualizations of the 'usual suspects', not only for opening the black box of the role of businesses in societal change but to actively explore pathways through which they can shape and accelerate sustainability transformations. Our analyzes of how businesses leverage practices and values to contribute to pathways toward sustainability presents just the first step in this direction. We hope future research can build on our reconceptualization of the role of businesses in sustainability transitions to explore new entry points for this actor to capitalize on its transformational potential.

8 Acknowledgements

We are grateful to the participants of our survey and interviews that help us to understand the complexities of operating a sustainability striving business. We would like to thank the Canadian Social Sciences and Humanities Research Council for generous financial support of this research.

9 References

Allon, F. & Sofoulis, Z. (2010), Everyday water: Cultures in transition, *Australian Geographer, 37*(1), 45-55.

Anon. (2017). Perspectives on transitions to sustainability, Accessed 2018.05.10 at: https://www.eea.europa.eu/publications/perspectives-on-transitions-to-sustainability.

Aragón-Correa, J. A., Hurtado-Torres, N., Sharma, S., & García-Morales, V. J. (2008). Environmental strategy and performance in small firms: a resource-based perspective. *Journal of Environmental Management*, *86*(1), 88–103.

Ates, A., & Bititci, U. (2011). Change process: a key enabler to building resilient SMEs. *International Journal of Production Research*, *49*(18), 5601-5618.

Ayyagari, M. D.-K., Asli Beck, Thorsten. (2003). *Small and Medium Enterprises across the Globe: A New Database*. The World Bank.

B-Lab (2018), B-Lab website, Accessed 2018.05.10 at https://www.bcorporation.net

Berggren, C., Magnusson, T. & Sushandoyo, D. (2015). Transition pathways revisited: Established firms as multi-level actors in the heavy vehicle industry. *Research Policy, 44*(5), 1017–1028.

Betsill, M. & Stevis, D. (2016). The politics and dynamics of energy transitions: lessons from Colorado's (USA) "New Energy Economy." *Environment and Planning C: Government and Policy*, 34(2), 381–396.

Bidmon, C. M., & Knab, S. (2014). The Three Roles of Business Models for Socio-technical Transitions. In The Proceedings of XXV ISPIM Conference – Innovation for Sustainable Economy and Society, 8-11 June 2014, Dublin, Ireland. (pp. 1–14).

Bidmon, C.M. & Knab, S.F. (2018). The three roles of business models in societal transitions: New linkages between business model and transition research. *Journal of Cleaner Production*, *178*, 903–916.

Bolton, R., & Hannon, M. (2016). Governing sustainability transitions through business model innovation: Towards a systems understanding. *Research Policy*, *45*(9), 1731–1742.

Boons, F. (2009). *Creating Ecological Value: An Evolutionary Approach to Business Strategies and the Natural Environment*. Edward Elgar Publishing.

Boons, F. & Ludeke-Freund, F. (2013), "Business models for sustainable innovation: state-of-the-art and steps towards a research agenda", *Journal of Cleaner Production, 45*: 9-19

Borghei, B. & Magnusson, T., (2016). Niche experiments with alternative powertrain technologies: the case of electric city-buses in Europe. *International Journal of Automotive Technology and Management*, *16*(3), 274–300.

Bos-Brouwers, H. E. J. (2010). "Corporate sustainability and innovation in SMEs: evidence of themes and activities in practice." *Business Strategy and the Environment 19*(7): 417-435

Bradford, J., & Fraser, E. D. G. (2008). Local authorities, climate change and small and medium enterprises: identifying effective policy instruments to reduce energy use and carbon emissions. *Corporate Social Responsibility and Environmental Management*, *15*(3), 156–172.

Bridge, S. & O'Neill, K (2013). Understanding Enterprises: Entrepreneurship and Small Businesses, 4th edition. London: Palgrave Macmillan.

Brown, R.R., Farrelly, M.A. & Loorbach, D.A., (2013). Actors working the institutions in sustainability transitions: The case of Melbourne's stormwater management. *Global Environmental Change, 23*(4), 701–718.

Burch, S. et al. (2016). Governing and accelerating transformative entrepreneurship: exploring the potential for small business innovation on urban sustainability transitions. *Current Opinion in Environmental Sustainability*, *22*, 26–32.

Caniëls, M.C.J. & Romijn, H.A. (2008). Strategic niche management: towards a policy tool for sustainable development. *Technology Analysis & Strategic Management*, 20(2), 245–266.

Carr. E.H. (1964), *The Twenty Years' Crisis*, Harper & Row: New York.

Chassé, S., & Boiral, O. (2017). Legitimizing Corporate (Un) Sustainability: A Case Study of Passive SMEs. *Organization & Environment*, *30*(4), 324–345.

Clement, K. & M. Hansen (2003). Financial incentives to improve environmental performance: a review of Nordic public sector support for SMEs. *European Environment 13*(1): 34-47

Coenen, L., Raven, R. & Verbong, G. (2010). Local niche experimentation in energy transitions: A theoretical and empirical exploration of proximity advantages and disadvantages. *Technology in Society*, *32*(4), 295–302.

Cohen, B., & Winn, M. I. (2007). Market imperfections, opportunity and sustainable entrepreneurship. *Journal of Business Venturing*, *22*(1), 29–49.

Cooke, P. (2010). Socio-technical Transitions and Varieties of Capitalism: Green Regional Innovation and Distinctive Market Niches. *Journal of the Knowledge Economy*, *1*(4), 239–267.

Dean, T. J., & McMullen, J. S. (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of Business Venturing*, *22*(1), 50–76.

del Brío, J. Á. & Junquera. B (2003). A review of the literature on environmental innovation management in SMEs: implications for public policies. *Technovation* *23*(12): 939-948.

Di Gregorio, D. (2017). Place-based business models for resilient local economies: Cases from Italian slow food, agritourism and the albergo diffuso. *Journal of Enterprising Communities: People and Places in the Global Economy*, *11*(1), 113-128.

Dijk, M., Wells, P. & Kemp, R. (2016). Will the momentum of the electric car last? Testing an hypothesis on disruptive innovation. *Technological Forecasting and Social Change, 105*, 77–88.

Dosi. G. (1982), " Technological paradigms and technological trajectories. A suggested interpretation of the determinants and directions of technical change", *Research Policy, 11*(3), 147-162.

Erlinghagen, S., & Markard, J. (2012). Smart grids and the transformation of the electricity sector: ICT firms as potential catalysts for sectoral change. *Energy Policy*, *51*(C), 895–906.

Farla, J., Markard, J., Raven, R., & Coenen, L. (2012). Sustainability transitions in the making: A closer look at actors, strategies and resources. *Technological Forecasting and Social Change*, *79*(6), 991–998.

Fischer, L.-B., & Newig, J. (2016). Importance of actors and agency in sustainability transitions: A systematic exploration of the literature. *Sustainability*, *8*(5), 476.

Foxon, T.J., Hammond, G.P. & Pearson, P.J.G. (2010). Developing transition pathways for a low carbon electricity system in the UK. *Technological Forecasting and Social Change, 77*(8), pp.1203–1213.

Geels, F. W. (2002). Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research Policy*, *31*(8–9), 1257–1274.

Geels, F. W. (2004). From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. *Research Policy*, *33*(6–7), 897–920.

Geels, F.W. (2005). Co-evolution of technology and society: The transition in water supply and personal hygiene in the Netherlands (1850-1930) - A case study in multi-level perspective", *Technology in Society, 27*(3), 363-397.

Geels, F. W. (2005). The dynamics of transitions in socio-technical systems: a multi-level analysis of the transition pathway from horse-drawn carriages to automobiles (1860-1930). *Technology Analysis and Strategic Management*, *17*(4), 445–476.

Geels, F. W. (2014). Regime Resistance against Low-Carbon Transitions: Introducing Politics and Power into the Multi-Level Perspective. *Theory, Culture & Society*, *31*(5), 21–40. https://doi.org/10.1177/0263276414531627

Geels, F.W., (2014b). Reconceptualising the co-evolution of firms-in-industries and their environments: Developing an inter-disciplinary Triple Embeddedness Framework. *Research Policy, 43*(2), 261–277.

Geels, F.W. et al. (2018). Reducing energy demand through low carbon innovation: A socio-technical transitions perspective and thirteen research debates. Energy Research & Social Science, 40, pp.23–35.

Gibbs, D. (2006). *Sustainability Entrepreneurs, Ecopreneurs and the Development of a Sustainable Economy* Greener Management International, (Vol. 2006). 63-78.

Gomez, R., Isakov, A., & Semansky, M. (2015). *Small Business and the City: The Transformative Potential of Small Scale Entrepreneurship*. Rotman UTP Publishing, Toronto.

Grin, J., Rotmans, J., Schot, J. (2010), *Transitions to Sustainable Development, New Directions in the Study of Long Term Transformative Change*, Routledge, New York.

Halila, F. (2007). Networks as a means of supporting the adoption of organizational innovations in SMEs: the case of Environmental Management Systems (EMSs) based on ISO 14001. *Corporate Social Responsibility and Environmental Management 14*(3): 167-181

Hannon, M. J., Foxon, T. J., & Gale, W. F. (2013). The co-evolutionary relationship between energy service companies and the UK energy system: Implications for a low-carbon transition. *Energy Policy*, *61*, 1031–1045.

Hansen, E. G. & Klewitz, J. (2012). Publicly mediated inter-organizational networks: a solution for sustainability-oriented innovation in SMEs. *In:Entrepreneurship, innovation and sustainability.* Greenleaf, Sheffield: 254-278

Heiskanen, E. et al. (2018). Incumbent energy companies navigating the energy transitions: Strategic action or bricolage? *Environmental Innovation and Societal Transitions*.

Hess, D.J. (2014). Sustainability transitions: A political coalition perspective. *Research Policy, 43*(2),.278–283.

Hess, D.J. (2016). The politics of niche-regime conflicts: Distributed solar energy in the United States. *Environmental Innovation and Societal Transitions, 19*, 42–50.

Hockerts, K., & Wüstenhagen, R. (2010). Greening Goliaths versus emerging Davids - Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *Journal of Business Venturing*, *25*(5), 481–492.

Hughes, T. (1983). *Networks of Power*. John Hopkins University Press: Baltimore.

Huijben, J.C.C.M. & Verbong, G.P.J. (2013). Breakthrough without subsidies? PV business model experiments in the Netherlands. *Energy Policy*, *56*, 362–370.

Hörisch, J. (2015). The role of sustainable entrepreneurship in sustainability transitions: A conceptual synthesis against the background of the multi-level perspective. *Administrative Science. 5*, 286–300.

Jenkins, H. (2006). Small business champions for corporate social responsibility. *Journal of Business Ethics, 67*, 241-256.

Jensen, J.S., Fratini, C.F. & Cashmore, M.A., 2015. Socio-technical systems as place-specific matters of concern: The Role of urban governance in the transition of the wastewater system in denmark. *Journal of Environmental Policy & Planning*, *18*(2), 234–252.

Johnson, M. P., & Schaltegger, S. (2016). Two decades of sustainability management tools for SMEs: How far have we come? *Journal of Small Business Management*, *54*(2), 481–505.

Kemp, R. & Loorbach, D. (2005). Dutch Policies to Manage the Transition to Sustainable Energy. *Jahrbuch Okologische Okonomik*,123–151.

Kemp, R., & Loorbach, D. (2006). *Reflexive Governance for Sustainable Development*. Edward Elgar Publishing.

Kemp, R. (1994). Technology and the transition to environmental sustainability. *Futures*, *26*(10), 1023–1046.

Kemp, R., Schot, J. & Hoogma, R. (1998). Regime shifts to sustainability through processes of niche formation: The approach of strategic niche management. *Technology Analysis & Strategic Management*, *10*(2), 175–195.

Kenis, A., Bono, F. & Mathijs, E. (2016). Unravelling the (post-)political in transition management: Interrogating pathways towards sustainable change. *Journal of Environmental Policy & Planning, 18*(5), pp.568–584.

Klewitz, J., Zeyen, A., & Hansen, E. G. (2012). Intermediaries driving eco-innovation in SMEs: a qualitative investigation. *European Journal of Innovation Management*, *15*(4), 442–467.

Kungl, G. & Geels, F.W. (2018). Sequence and alignment of external pressures in industry destabilisation: Understanding the downfall of incumbent utilities in the German energy transition (1998–2015). *Environmental Innovation and Societal Transitions, 26*, 78–100.

Lauber, V. & Sarasini, S. (2014). The response of incumbent utilities to the challenge of renewable energy. In B. Sandén (ed). *Systems Perspectives on Renewable Power*. Chalmers University of Technology, pp. 138–148.

Lawrence, S. R., Collins, E., Pavlovich, K. & Arunachalam, M. (2006), Sustainability practices of SMEs: the case of NZ, *Bus. Strat. Env.*, 15, 242–257

Lieberherr, E., & Truffer, B. (2015). The impact of privatization on sustainability transitions: A comparative analysis of dynamic capabilities in three water utilities. *Environmental Innovation and Societal Transitions*, *15*, 101–122.

Loorbach D. (2009). Transition Management for Sustainable Development: A Prescriptive, Complexity-Based Governance Framework. *Governance*, *23*(1), 161–183.

Loorbach, D. (2007). *Transition Management: new mode of governance for sustainable development*.

Loorbach, D. (2010). Business strategies for transitions towards sustainable systems. *Business Strategy and the Environment*, *19*(2), 133–146.

Loorbach D, van Bakel Janneke C., Whiteman Gail, & Rotmans Jan. (2009a). Business strategies for transitions towards sustainable systems. *Business Strategy and the Environment*, *19*(2), 133–146.

Loorbach D, van Bakel Janneke C., Whiteman Gail, & Rotmans Jan. (2009b). Business strategies for transitions towards sustainable systems. *Business Strategy and the Environment*, *19*(2), 133–146.

Loorbach, D., & Wijsman, K. (2013). Business transition management: exploring a new role for business in sustainability transitions. *Journal of Cleaner Production*, *45*, 20–28.

Markard, J., Raven, R. & Truffer, B. (2012). Sustainability transitions: An emerging field of research and its prospects. *Research Policy*, *41*(6), 955–967.

Masurel, E. (2007). Why SMEs invest in environmental measures: Sustainability evidence from small and medium-sized printing firms. *Business Strategy and the Environment*, *16*(3), 190–201.

McMeekin, A. & Southerton, D. (2012), Sustainability transitions and final consumption: Practices and socio-technical systems. *Technology Analysis and Strategic Management, 24*(4), 345-361.

Montalvo, C. (2008). General wisdom concerning the factors affecting the adoption of cleaner technologies: a survey 1990–2007. *Journal of Cleaner Production, 16*(1), S7-S13.

Moore, S. B., & Manring, S. L. (2009). Strategy development in small and medium sized enterprises for sustainability and increased value creation. *Journal of Cleaner Production*, *17*(2), 276–282.

Nelson, R. & Winter, S. (1977). In search of useful theory of innovation. *Research Policy*, *6*, 36–76.

Ngar-yin Mah, D., Wu, Y.-Y. & Hills, P.R.(2017). Explaining the role of incumbent utilities in sustainable energy transitions: A case study of the smart grid development in China. *Energy Policy, 109*, 794–806.

Parker, P. & Rowlands, I.H. (2007). City partners maintain climate change action despite national cuts: Residential energy efficiency programme valued at local level*. Local Environment 12*(5), 505-517

Pinkse, J., Bohnsack, R. & Kolk, A. (2014). The role of public and private protection in disruptive innovation: The automotive industry and the emergence of low-emission vehicles. *Journal of Product Innovation Management*, *31*(1), 43–60.

Porter, M. E., & Kramer, M. R. (2006). Strategy and society: the link between competitive advantage and corporate social responsibility. *Harvard Business Review*, *84*(12), 78–92, 163.

Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business Strategy and the Environment*, *20*(4), 222–237.

Schaltegger, S., Hansen, E.G. & Lüdeke-Freund, F. (2016). Business Models for Sustainability. *Organization & Environment, 29*(1), 3–10.

Schaltegger, S., Ludeke-Freund, F., & Hansen, E.G. (2016). Business models for sustainability: A co-evolutionary analysis of sustainable entrepreneurship, innovation, and transformation. *Organization & Environment, 29*(3), 264-289.

Schaltegger, S., Lüdeke-Freund, F., & Hansen, E. G. (2012). Business cases for sustainability: the role of business model innovation for corporate sustainability. *International Journal of Innovation and Sustainable Development*, *6*(2), 95–119.

Schilling, J. & Logan, J. (2008). Greening the rust belt: A green infrastructure model for right sizing America's shrinking cities. *Journal of the American Planning Association*, *74*(4), 451–466.

Schot, J. & Geels, F.W. (2008). Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, and policy. *Technology Analysis & Strategic Management*, *20*(5), pp.537–554.

Schot, J., Hoogma, R. & Elzen, B., (1994). Strategies for shifting technological systems. The case of the automobile system. *Futures, 26*(10), 1060–1076.

Schroeder, H., Burch, S., & Rayner, S. (2013). Novel multisector networks and entrepreneurship in urban climate governance. *Environment and Planning C: Government and Policy*, *31*(5), 761–768.

Schumpeter, J. A. (1942). *Capitalism, Socialism and Democracy*. Routledge, London.

Shove, E. (2003), Users, technologies and expectations of comfort, cleanliness and convenience, *Innovation, 16*(2), 193-206.

Shove, E. (2003). Converging conventions of comfort, cleanliness and convenience. *Journal of Consumer Policy*, *26*(4), 395–418.

Shove, E & Walker, G (2007). 'CAUTION! Transitions ahead: politics, practice, and sustainable transition management' *Environment and Planning A*, *39*(4) 763-770.

Shove, E., & Walker, G. (2010). Governing transitions in the sustainability of everyday life. *Research Policy*, *39*(4), 471–476.

Shrivastava, P., & Kennelly, J. (2013). Sustainability and place-based enterprise. *Organization & Environment*, *26*, 83–101.

Smith, A. & Raven, R. (2012). What is protective space? Reconsidering niches in transitions to sustainability. *Research Policy*, *41*(6), 1025–1036.

Smith, A. (2007). Translating sustainabilities between green niches and socio-technical regimes. *Technology Analysis & Strategic Management, 19*(4),427–450.

Social Enterprise Toronto. (2017). Social Enterprise Toronto Website, Available from http://www.socialenterprisetoronto.ca/members/#feature-members [Accessed Februrary 14, 2018].

Spaargaren, G. (2003). Sustainable consumption: A theoretical and environmental policy perspective. *Society & Natural Resources*, *16*(8), 687–701.

Statistics Canada (2016). Key Small Business Statistics. Available at https://www.ic.gc.ca/eic/site/061.nsf/vwapj/KSBS-PSRPE_June-Juin_2016_eng-V2.pdf/$file/KSBS-PSRPE_June-Juin_2016_eng-V2.pdf

Statistics Canada (2017). Canada business counts. Available at https://www.statcan.gc.ca/daily-quotidien/170814/dq170814b-eng.pdf

Steen, M. & Weaver, T. (2017). Incumbents' diversification and cross-sectorial energy industry dynamics. *Research Policy, 46*(6),1071–1086.

Stubbs, W., & Cocklin, C. (2008a). Conceptualizing a "Sustainability Business Model." *Organization & Environment*, *21*(2), 103–127.

Teece, D.J., Pisano, G. & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.

ten Heuvelhof, E., & Weijnen, M. (2013). Investing in smart grids within the market paradigm: The case of the Netherlands and its relevance for China. *Policy and Society*, *32*(2), 163–174.

Tilley, F. & Young, W. (2006), Sustainability Entrepreneurs: Could They Be the True Wealth Generators of the Future? *Greener Management International 55,* 79-92.

Turnheim, B., & Geels, F. W. (2012). Regime destabilisation as the flipside of energy transitions: Lessons from the history of the British coal industry (1913-1997). *Energy Policy*, *50*, 35–49.

Turnheim, B., & Geels, F. W. (2013). The destabilisation of existing regimes: Confronting a multi-dimensional framework with a case study of the British coal industry (1913-1967). *Research Policy*, *42*(10), 1749–1767.

Upward, A., & Jones, P. (2016). An Ontology for strongly sustainable business models: Defining an enterprise framework compatible with natural and social science. *Organization & Environment*, *29*(1), 97–123.

van Buren, A., & Loorbach, D. (2009). Policy innovation in isolation? *Public Management Review*, *11*(3), 375–392.

van den Bergh, J. C. J. M., Truffer, B., & Kallis, G. (2011). Environmental innovation and societal transitions: Introduction and overview. *Environmental Innovation and Societal Transitions*, *1*(1), 1– 23.

van den Heiligenberg, H.A.R.M. et al. (2017). A habitat for sustainability experiments: Success factors for innovations in their local and regional contexts. *Journal of Cleaner Production, 169*, 204–215.

Verbong, G.P.J., Beemsterboer, S. & Sengers, F. (2013). Smart grids or smart users? Involving users in developing a low carbon electricity economy. *Energy Policy*, *52,*117–125.

Wainstein, M. E., & Bumpus, A. G. (2016). Business models as drivers of the low carbon power system transition: A multi-level perspective. *Journal of Cleaner Production*, *126*, 572–585.

Wells, P. (2016). Economies of scale versus small is beautiful a business model approach based on architecture, principles and components in the beer industry. *Organization & Environment, 29*(1), 36-52.

Wheeler, D., et al. (2005). "Creating sustainable local enterprise networks." *MIT Sloan Management Review 47*(1): 33-40

Whetten, D.A. (2007). A critique of organizational identity scholarship: Challenging the uncritical use of social identity theory when social identities are also social actors. In Bartel, C.A. Blader, S., Wrzesniewski, A (eds). *Identity and the Modern Organization*. Pp. 245-253. Lawrence Erlbaum Associates, Inc., Publisher. Mahwah.

Williams, S. and Schaefer, A. (2013), "Small and Medium-Sized Enterprises and Sustainability: Managers' Values and Engagement with Environmental and Climate Change Issues" *Bus. Strat. Env., 22,* 173–186.

Witkamp, M.J., Raven, R.P.J.M. & Royakkers, L.M.M. (2011). Strategic niche management of social innovations: the case of social entrepreneurship. *Technology Analysis & Strategic Management*, 23(6), 667–681.

Wolf, R. (2002) How partners become rivals: Testing neorealist and liberal hypotheses. *Security Studies, 12(*2), 1-42.

Zollo, M., Cennamo, C., Neumann, K. (2013), Beyond what and why: Understanding organizational evolution towards sustainable enterprise models. *Organization & Environment*, 26(3), 241-259.