



Impact measurement in an emerging social sector: Four novel approaches

Journal:	<i>Academy of Management Discoveries</i>
Manuscript ID	AMD-2020-0044.R2
Manuscript Type:	Revision
Keywords:	Not-for-profit and/or Social Entrepreneurship < Entrepreneurship & Family Business, Performance Management < Human Resource Management & Work Design, Multilevel Theory < Research Methods, Social Issues < Sustainability, Economic/Social Sustainability < Sustainability
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IMPACT MEASUREMENT IN AN EMERGING SOCIAL SECTOR: FOUR NOVEL APPROACHES

Abstract

This paper explores the formalization of social impact measurement (SIM) in contexts where there are little or no expectations for it. Drawing on a combination of institutional and organizational-level theories, we assess the complex relationship between nine potential antecedents of SIM and its formalization, across 152 social entrepreneurs in Chile's social sector. Using configurational comparative methods (fsQCA), we discover and map four novel approaches to social impact measurement, revealing a much more diverse and counterintuitive reality. We also find that factors assumed to be central to formalization in mature sectors, in emerging settings play a peripheral role at best. By offering a multi-level explanation of what matters and when for SIM in an emerging social sector, this paper offers empirical evidence on how to better capture and report SIM and expands the theoretical understanding of SIM as a governance and accountability mechanism in social entrepreneurship.

Keywords: impact measurement; social entrepreneurship; social value; emerging social sector; accountability; governance; Chile

INTRODUCTION

In both research and practice, there is a growing discussion around the relevance of evaluating the multiple impacts of social ventures (Rawhouser, Cummings & Newbert, 2019; Wry & Haugh, 2018). The demand for social impact measurement (SIM) originates from multiple sources. On the one hand, stakeholders, who want additional accountability, proof of legitimacy and better sense of what returns over their investments (Ebrahim & Rangan, 2010; 2014). On the other hand, social organizations gradually see it as instrumental to learn and improve operational and competitive aspects of the business and secure future success (Keevers et al., 2012). Overall, SIM plays a role in appraising, communicating and legitimizing often-hidden internal and external value social ventures are creating (Ebrahim & Rangan, 2014) and the outcomes from their prosocial efforts (Austin, 2006; Rawhouser et al., 2019; Stephan et al., 2016). SIM is especially important in social sectors where accountability is paramount and institutional funders and governments actively encourage its use to allocate resources in the most efficient and effective way (Nicholls, 2010).

While relevant, SIM is still a poorly understood phenomenon within existing scholarship (Saebi, Foss & Linder, 2018) and remains theoretically and empirically underdeveloped (Rawhouser et al., 2019). Most of what we know about it stems from contexts where normative frameworks, mandatory schemes, and/or market demands exist to motivate and regulate SIM efforts. This is usually the case of mature social sectors, where legislation such as the Affordable Care Act (USA) or the Social Value Act (UK) are constantly putting social enterprises' governance and accountability under a microscope. In these contexts, research has been primarily focused on understanding how, and with what consequences, social ventures deal with

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3 pressures from stakeholders to measure social impact using formal measurement instruments
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5 (see e.g. Hall, Millo & Barman, 2015; Molecke & Pinkse, 2017).
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8 This might not necessarily be the case within certain social sectors where SIM is at the
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10 earlier stages of usage, which makes our already poor understanding of the phenomenon even
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12 more problematic. This is important since sectors exhibiting fewer guidelines and templates for
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14 SIM formalization tend to be “characterized by ambiguity and uncertainty that permeates
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16 everything from the viability and performance of critical technologies to customers’ needs, the
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18 competitive landscape, products’ meaning, and conceptions of value” (Zuzul & Tripsas, 2019:2).
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20 In these contexts, we would expect to find a lack of formal rules, institutional structures,
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22 isomorphic pressures, formal governance and accountability mechanisms for capturing and
23
24 communicating social impacts. As such, it is specifically thought-provoking to understand why
25
26 some social ventures would engage with SIM anyway. Existing theories have not offered
27
28 explanations as to why and how social enterprises voluntarily choose to engage in and formalize
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30 SIM in contexts where the expectations for SIM are fuzzy and its benefits for social enterprises
31
32 are not immediately evident. Therefore, in such contexts we seek to understand *what catalyzes*
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34 *social ventures to formalize social impact measurement activities? and what approaches emerge*
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36 *as a result?* Context with fewer guidelines and templates allow us to better understand the paths
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38 to SIM, unlike more established sectors where the antecedents are likely to be blurred or skewed
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40 by formal rules.
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47 In the absence of a theoretical apparatus, we draw from institutional and organization-level
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49 theories (Barman & MacIndoe 2012) to conjuncturally assess the enterprise’s ability to formalize
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51 SIM and the perceived value of doing so alongside isomorphic processes and institutional
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53 pressures. Our study focuses on the emerging social sector in Chile, where we surveyed 152
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3 social entrepreneurs. Using configurational comparative methods, we analyzed combinations of
4 nine internal and external factors that might enable SIM formalization. Our configurational
5 analyses reveal a number of counterintuitive aspects of SIM and allow us to identify four novel
6 approaches, which we label: *forward-looking & outcome-driven*; *inward-looking & process-*
7 *driven*; *outward-looking & market-driven*; *outward-looking & public-driven*. We discover that
8 not only can SIM take many forms, but it also emerges in the absence of factors assumed central
9 within more established social sectors (i.e. certifications, maturity and investors pressure).

19 Our findings offer several contributions. By exploring new contexts and theories, we expand
20 our understanding of SIM. Most scholarly efforts have been focused on conceptualizing and
21 measuring social impact by looking at the venture's mission (Stevens, Moray & Bruneel, 2015)
22 or immediate outputs (Rawhouser et al., 2019). Our unexpected findings offer an explanation for
23 its spontaneous emergence. These discoveries show us a much more varied and counterintuitive
24 reality compared to what we find through the lens of single theories. When assessed as multi-
25 level configurations in alternative contexts, these factors are simply not as relevant for SIM
26 formalization as previously thought. Empirically, we offer evidence and ways of capturing SIM
27 and its antecedents in an emerging social venturing context. The examination of SIM has relied
28 so far on measurement practices and data intended for large corporations, e.g. KLD index, GRI
29 reporting. These are meant to guide institutional investments, report on CSR initiatives and
30 demonstrate social performance across and within industries (Frias-Aceituno Rodriguez-Ariza &
31 Garcia-Sánchez, 2014; Rawhouser et al., 2019). While robust and generalizable, these are
32 unsuitable to capture and explain the phenomena. We offer insight into how to measure, collect,
33 analyze and report evidence on SIM, which is pertinent to SIM scholarship.

THEORETICAL GROUNDING

Social impact measurement

Social impact measurement (SIM) is the processes of capturing and communicating valued information about the effects of social interventions, i.e. whether and how a change in condition has occurred (Kroegeer & Weber, 2014; Micheli & Mari, 2014). Initially SIM emerged from public policy debates regarding interventions and accountability for the health of populations and the environment (Stephan et al., 2016). This later expanded to a variety of initiatives to ensure that the expenditure of public funds and industrial development were benefiting citizens and nations (Ebrahim, 2003).

Social impact measurement is tightly allied to notions of trust and legitimacy. In the social sector, SIM plays a critical role in the trust formation process, when organizations seek funding (DiMaggio & Anheier, 1990). In these instances, social venture programing is deemed legitimate when it is accompanied with evidence that activities are leading to noticeable improvements in the target populations (Nicholls, 2009). This is why entities, that are dependent funding, dedicated so much time and resources to SIM. For example, the Robin Hood Foundation and the Robert Enterprise Development Fund (REDF), have developed extensive SIM detailing cost-benefit ratio methodologies for social programs to report and communicate their efforts (Emerson, 2003).

On one hand, think tanks have latched on to the idea of advancing SIM techniques and practices (e.g. Epstein & Yuthas, 2014 and the New Philanthropy Capital's Inspiring Impact). From these efforts, a host of tools and frameworks are now available to companies, governments, and social enterprises seeking to monitor and communicate their social impact. Maas and Liket (2011) identify more than 30 different SIM approaches that include temporal dimensions

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3 (retrospective, current, or prospective), perspectives (micro, meso or macro), and ambitions (to
4 screen, monitor, and/or report). Today, there are databases that host large collections of tools and
5 indicators: Social Value International, IRIS+ and Global Value Exchange, among others.
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10 On the other hand, academic uptake of SIM has moved at a slower pace. Even though Dees
11 (2007) and subsequently Ebrahim and Rangan (2010) highlight the importance of impact
12 measurement in the social enterprise ecosystem, SIM scholarship continues to lack of empirical
13 and theoretical studies that develop the field. For their part scholars have opted to use
14 practitioner-based works to offer normative suggestions (Ebrahim & Rangan, 2014). Even
15 though many studies highlight the range of benefits associated with SIM (e.g. Colby, Stone &
16 Carttar, 2004; Poole et al., 2001), we know very little about how SIM is governed in the absence
17 of formalized arrangements and isomorphic pressures. In other words, there is a dearth
18 information about contextual SIM drivers and approaches in contexts that do not ask for SIM,
19 many of which are in emerging social sectors.
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35 **Formalization of social impact measurement: configural antecedents**

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37 Understanding how SIM formalization occurs in emerging social sectors requires the
38 identification of a range of relevant conditions or ‘theoretical units’ for it. To do so, we draw on
39 Barman and MacIndoe’s (2012) multi-level approach and pay attention to a range of institutional
40 and organization-level perspectives. We argue that in the absence of one coherent theoretical
41 apparatus, the formalization of SIM can be best explained by the addition of organizational
42 capacity alongside variables drawn from new institutionalism. Ultimately, neither the isomorphic
43 pressures delineated by new institutional theory, nor organizational structural and strategic
44 characteristics can fully explain the “uneven spread of outcome measurement across the field”. A
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3 configurational multi-level approach is required. In what follows we explain the institutional
4 antecedents and organizational capacity perspectives found in extant literature. These
5 perspectives inform the constructs in our empirical study.
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10 ***Institutional antecedents.*** Prior studies have identified a number of institutional
11 antecedents, which exert pressure on organizations for the development and use of SIM. Hall et
12 al. (2015) show how SIM matters when it comes to prioritizing stakeholders. It also enables
13 social ventures to successfully negotiate with funders by describing the social identity of the
14 enterprise to constituents (Grimes, 2010). Developing SIM mechanisms is central to stakeholders
15 because investors struggle to understand their investments (Déjean, Gond, & Leca, 2004). It sets
16 the stage for funder trust (Thomson, 2010) and helps to meet external accountability expectations
17 (Molecke & Pinkse, 2017). Indeed, without SIM governance the current levels of funding for
18 social programs would not have risen to the existing levels. The latter involves both government
19 and philanthropic programs. SIM can be also explained by the need for legitimizing social
20 actions (Nicholls, 2010) facing a range of stakeholders including consumers, who can
21 discriminate between the social value delivered by a range of competitors.
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38 Four of the more frequently cited institutional antecedents, or ‘pressures’, for SIM
39 formalization include, government, investors, market and civic society. Arvidson and Lyon
40 (2014) highlight the role of governmental antecedents through external resource provider
41 demands. Such firms undergo social impact evaluations as a way to bridge the tension between
42 what organizations are currently doing and what they are asked to measure. Muñoz and Kimmitt
43 (2019) are similar in this regard with a diagnostic framework that governments can use to design
44 impact measurement for the allocation of social bonds investments.
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3 Investor antecedents and SIM formalization are often viewed a mechanism to engage with
4 stakeholders through transparent reporting to reduce capital constraints (Cheng, Ioannou, &
5 Serafeim, 2014). Investors use a range of social and environmental impact measurement for a
6 multitude of reasons, primarily of which is performance-based outcomes, client demand and for
7 strategic reasons (Ioannou & Serafeim, 2015; Amel-Zadeh & Serafeim, 2018). There are
8 however situations in which private capital for social investing, for example in social impact
9 bonds, may not actually lead to any outcome differences when compared to traditional methods
10 (Edmiston & Nicholls, 2017).
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21 Market based forces are another aspect of SIM formalization. Grewal, Riedl and Serafeim
22 (2019) empirically investigate the value of market based nonfinancial impact measurement
23 regulation, demonstrating that the equity market rewards firms with strong environmental, social,
24 and governance disclosures. Dubey et al. (2017), highlight that market demand for SIM is
25 gaining favor through a mixture of coercive and normative pressures that nudge managers to give
26 more caution to external market-based measures.
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35 Notions of a civil society also act as a pressure for the formalization of SIM. Hall, Millo and
36 Barman (2015) extend stakeholder perspectives of social return on investment by explaining how
37 managers' prioritization of stakeholders can be observed through accounting reporting
38 mechanisms, which act as a mirror and voice for societal values and preferences. Calls for rapid
39 responses to issues of global poverty are another example of societal pressure to develop impact
40 measurement. In this domain, Ebrahim and Rangan (2014) suggest that responses to societal
41 problems and pressures requires a willingness to have variance in the approaches and time
42 frames used when measuring organizational impacts on the lives of people and society.
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3 ***Organizational antecedents.*** Similarly, research has identified a number of organizational
4 antecedents with respect to SIM. Organizational antecedents refer to those organizational
5 characteristics that explain the differential adoption of SIM practices within a certain institutional
6 environment, including competences, structures and actions (Barman and MacIndoe, 2012). SIM
7 is increasingly being considered as an integral component of the governance of social
8 organizations (Mair, Mayer & Lutz, 2015). Its formalization can be explained by the number of
9 benefits it presumably delivers. SIM can be driven by perceived operational and future benefits
10 (Beer & Micheli, 2018). It enables learning and strategizing, as it improves the effectiveness of
11 strategic decision making (LeRoux & Wright, 2010) and the internal understanding of social
12 value (Kroeger & Weber, 2014). It reinforces organizational identity (Grimes, 2010), social
13 actions and accountability principles (Benjamin, 2013; Ebrahim, Battilana, & Mair, 2014). Also,
14 it can strengthen the legitimacy of the social mission, reinforcing employee behaviors (Beer &
15 Micheli, 2017). SIM helps front-line employees by motivating conversations about financial and
16 non-financial progress as well as strategic progression (Benjamin & Campbell, 2015), becoming
17 a critical mechanism to encourage connections between social and financial performance at the
18 organizational level (Battilana et al., 2015; Beer & Micheli, 2017).
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40 Four of the more frequently cited organizational capacity aspects of SIM formalization
41 include, strategic value, operational value, future value, and business maturity. Nicholls (2009)
42 introduces the idea of ‘blend value accounting’ as a reporting and disclosure strategy for social
43 entrepreneurs, to communicate their social and environmental impacts. Ormiston and Seymour
44 (2011) provide a guiding view on the role of strategic value of SIM formalization, focusing on
45 the paradox between mission and formal measurement mechanisms. Their [Ormiston and
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3 Seymour] framework imbues the strategic importance of measurement through managerial
4 efforts to align strategy, mission and objectives, with SIM, to create significant value.
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8 Operational value and the formalization of SIM is best described by Rawhouser et al (2019).
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10 In their paper, the authors summarize and frame the extant field of SIM, from an operational
11 perspective considering principles, processes, and outcomes of impact measurement. They
12 conclude that operational aspects of SIM are valuable but there is currently a disparate
13 application of this meaning in scholarship and in practice. This is echoed by Beer and Micheli
14 (2017) who point to the importance of social value measurement from an operational value
15 perspective, calling for better theorizations and integration into practice.
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24 The future value of SIM formalization is evidenced in the extant literature through the
25 development of frameworks for social value creation (Kroeger & Weber, 2014). For example,
26 Grieco, Michelini and Iasevoli (2015) use time frame considerations in their hierarchical cluster
27 analysis and classification model (prospective, ongoing, retrospective) when assessing the role of
28 social impact. Mass and Liket (2011) develop a classification framework and method for SIM,
29 finding differences in time frame, orientation, length of time and perspectives. Mass and Liket
30 (2011) call for concentrated efforts on SIM and its longer-term impacts.
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40 Business maturity also act as an organizational capacity consideration for the formalization
41 of SIM. A recent study by Moroz and Gamble (2020) highlights the use of SIM as it relates to
42 different stages in the organizational journey, identifying five social and environmental audit
43 pathways over time and at different stages of social venture maturity. Parker et al (2019)
44 examine SIM in a B Corp, setting pointing to the negative short-term financial impacts of SIM
45 certification. More specifically, Parker et al. (2019) find that financial penalties accrue to less
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3 mature firms, namely, the small/younger organizations in their sample, and call for more
4 scholarship on the long-term impacts of SIM.
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8 Somewhere between the institutional and organizational factors are efforts to award, and be
9 awarded, a range of certifications which stem from, and engage with, SIM. Wilburn and Wilburn
10 (2013) describe the certification journey of organizations as a way to balance economic, social
11 responsibility and sustainability. Two such examples are B Corp certification or the Global
12 Impact Investing Rating System (GIIRS). More recently, there has been a surge of literature
13 focused on certifications requiring SIM. For example, Moroz et al (2018) set the foundation for
14 the role of impact measurement, certification and prosocial opportunities. Some authors argue
15 that there are short term financial penalties associated with impact measurement certification
16 (Parker et al, 2019) as well as within group variations under the same SIM certification (Gamble,
17 Parker & Moroz, 2020).
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31 ***Organizing the empirical puzzle.*** These factors account for varying institutional and
32 organizational antecedents for why firms would adopt and implement SIM (Arvidson, Lyon,
33 McKay, & Moro, 2013; Barman & MacIndoe, 2013; Benjamin & Campbell, 2015) and can
34 potentially explain how SIM assists organizations in the achievement of their goals (Gibbon &
35 Dey, 2011; Ryan & Lyne, 2008). Given the range of possible drivers, we return to Barman and
36 MacIndoe's (2012) multi-level approach to make sense of the above literature and organize the
37 empirical puzzle as our own multi-level analytical framework comprising institutional and
38 organizational antecedents, which we show in Figure 1¹.
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56 ¹ In Appendix E we provide a detailed list of previous research informing our selection of antecedents.
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3 With this framework we link the relevant literature to the multiple antecedents as part of a
4 coherent whole. As they make theoretical sense together, we expect to find novel conjunctural
5 relationships as they trigger SIM formalization. However, it is unlikely that they will all play an
6 equal role in SIM formalization or showing similar empirical weightings as the latter occurs. It is
7 possible that organizational factors will be more relevant than institutional factors overall, given
8 the lack of formal rules in our context of interest. Government pressure is unlikely to play a
9 central role by itself, but it can eventually appear supporting the effect of markets since, as seen
10 in similar contexts (e.g. Latam) and situations (case of), support programs and early regulatory
11 framework tend to follow waves of market change. This the case of Argentina and Colombia's
12 "community benefit company" legal structure and the well-known case of Benefit Corporations
13 in USA, Canada and Europe, where regulation followed from the irruption of B Corps and B
14 Lab. From the literature, we expect to see business maturity, certifications and investors playing
15 a decisive role, since as social enterprises grow supported by early investment certifications give
16 the former a way of proving their worth and gaining legitimacy. It would not be surprising to
17 discover different situations where one overplays the other, yet the richness exists hidden in the
18 possible unusual combinations of institutional and organizational factors enabling SIM
19 formalization. These are the working hunches guiding the following empirical examination.
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44 **RESEARCH CONTEXT, METHODS AND DATA**

45 **Research context**

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47 In exploring our questions, we turned our attention to a research setting that exhibited relatively
48 fewer guidelines and templates guiding SIM formalization. We focus on the emergent social
49 sector in Chile. Despite having a very active social sector (Muñoz, Kimmitt & Dimov, 2020),
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3 Chile (at the time of this writing) has not yet agreed on relevant legislative and regulative
4 arrangements to support its social enterprises and social entrepreneurs. The first, and only so far,
5 government support program for social ventures including impact measurement was only
6 launched in August 2018 (Corfo, 2018), which only supports six incubators and 40 social
7 entrepreneurs. Chile has yet to define an appropriate legal framework and regulation for social
8 enterprises and the prevailing normative and cognitive rules remain ambiguous (Muñoz et al.,
9 2020). Drawing on Zuzul and Tripsas (2019), we argue that in these early years, the paths to
10 creation, delivery and most importantly measurement of social impact are likely to be elusive
11 and rapidly changing. As such, because there are fewer guidelines and templates guiding SIM
12 formalization in the Chilean social sector, we can better understand the paths to SIM. In a more
13 established sector, the antecedents are likely to be blurred or skewed by formal rules.
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31 **Configurational approach**

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33 The complex empirical puzzle calls for a particular methodological approach, capable of
34 addressing causal complexity. In understanding the conjunctural relationship between internal
35 and external factors and the formalization of SIM, we use configurational comparative methods,
36 in its fuzzy-set variant - fsQCA (Ragin, 2008). FsQCA is a set-theoretic method to observe and
37 analyze complex causal relationships involving outcomes resulting from many possible potential
38 drivers. It enables making causal inferences based on the notions of causal sufficiency and causal
39 necessity and is particularly well-suited for addressing research questions dealing with complex
40 causal relationships (Misangyi et al., 2017).
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Sample and data collection

Casing procedure in fsQCA studies draws on two principles: the definition of an area of homogeneity where cases share similar background characteristics and with that set of cases maximum heterogeneity needs be achieved in terms of the outcome of interest. While comparability is essential, the sample requires cases with both positive and negative outcomes (Ragin, 2000), i.e. social enterprises that have and have not yet formalized impact measurement.

For this study, we use a proprietary dataset of over 580 social entrepreneurs from Chile, which was collected in 2016 as part of large-scale study of the Chilean social sector. The study aimed at developing an in-depth understanding of the key processes and mechanisms through which social enterprises emerge, operate and create value, as well as the contexts in which these enterprises thrive. Since no official registry for social enterprises exists in the country, the research team created a directory of more than 2,500 potential social entrepreneurs at the national level. We gathered the information through incubators, government-led entrepreneurship programs, support programs run by municipalities, universities and other relevant organizations such as B Corps Chile, the Chilean Association of Entrepreneurs (ASECH), and Chile's Economic Development Agency. We provided the following definition to the potential participants: "Social entrepreneurship involves any type business activity with a social purpose which utilises market mechanisms to resolve social and environmental problems." This definition sets the boundaries for the first delineation of the area of homogeneity. 340 individuals identified themselves with that definition.

To further narrow down the space of homogeneity whilst retaining high variance within the group, we refined the sample in line with three criteria. First, we drop from the sample cooperatives and communal organizations since they fall outside the theoretical scope of the

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3 present study. The explanatory conditions delineated in Figure 1 cannot account for (SIM)
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5 accountability formalization in situations of collective organizational governance. Second, to
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7 observe SIM in action we selected only those ventures that has been trading for at least one and
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9 less than 10 years. It is unlikely that nascent ventures (<1 year of trading) will have formalized
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11 social impact measurement or other forms of social impact accounting. Statements on that matter
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13 are likely to be purely speculative and we decided to minimize that risk at the expense of a
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15 smaller sample. Finally, to capture active SIM governance we focused on those respondents with
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17 active involvement in the management of the enterprise. We included founders and managers
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19 and discarded non-executive board members and investors that have no operational involvement
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21 in the enterprise. While SIM formalization decisions can stem from any of the above, founders
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23 and managers are better positioned to provide a full account of the process of formalization,
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25 intentions and outcomes thereof. A final subsample of 152 social enterprises was considered for
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27 this study. These enterprises operate across a range of industries including: social finance (equity
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29 crowdfunding and microlending) communication and design, culture, sports, packaging, software
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31 development, health, business consulting, hospitality, apparel, recycling, amongst others; whilst
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33 tackling a diverse range of social and environmental problems for example: poverty, drug
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35 addiction, deforestation, lack of education, financial exclusion, and mental health.
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42 To make sense of our findings, we conducted several follow-up interviews in early 2017
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44 with a subsample of 12 exemplar social enterprises, which at that time were formalizing their
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46 impact measurement practices. Details for each of the 12 participants, including main focus,
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48 declared impact and SIM tool utilized at the time of the interview, can be found in Table 1. The
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50 qualitative data obtained from the interviews were not used as a direct input for the
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52 configurational analysis, rather as a way of understanding the reality behind each type, which is
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3 central to the development of our explanations and approaches. Thus, this is a post-hoc analysis
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5 of the transcripts guided explicitly by our results, where we centered our examination on how the
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7 distinct configurations lead to formalization of SIM.
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10 **---Insert Table 1 about here---**
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14 **Measurement²**

15 ***Outcome condition: SIM formalization***

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17 While established measures for social impact remain scarce (Saebi et al., 2018), there are many
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19 alternative methods to understand social and environmental impact (Ebrahim & Rangan, 2014),
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21 from less-formalized ad-hoc tools to more-formalized international standards. The outcome
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23 measure thus captures the degree of specialization and standardization of the SIM practices
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25 reflecting the level of maturity of the social enterprise and commitment to better understanding
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27 and communicating its overall performance facing stakeholders. We coded SIM formalization by
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29 looking at the degree of specialization and standardization of the SIM practices reflecting the
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31 level of maturity of the social enterprise and commitment to better understanding and
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33 communicating its overall performance facing stakeholders. Scoring details are provided in the
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35 calibration section.
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42 ***Causal conditions***

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44 In the same way the outcome condition varies across a formalization continuum, there are
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46 different motives behind the founders and stakeholders' preferences for particular levels of
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54 ² The full list of questions utilized to assess our constructs are available in Appendix A.
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3 formalization. We therefore assess what triggers varying levels of formalization in terms of the
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5 type of impact measurement tool used by the social venture in the context of interest.
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8 *Business maturity* is captured by looking at the overall number of years the social enterprise
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10 has been in operation, formally or informally, exchanging goods or services and delivering social
11
12 value to beneficiaries. Drawing on Hwang and Powell (2009), we argue that the more mature the
13
14 social enterprise become, the more likely is to develop more sophisticated accountability and
15
16 performance measurement mechanisms. *Strategic value of SIM* focuses on the degree of utility of
17
18 the business's social orientation, as materialized in its social mission. It uses a 5-point Likert
19
20 scale to assess how important is the social orientation across seven dimensions: competitive
21
22 advantage, profitability, consumer decisions, employees, sales, suppliers and partnerships.
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24 *Future value of SIM* uses a 5-point Likert scale to capture the extent to which social
25
26 entrepreneurs perceived SIM as inherent to future success of social enterprise. There are two key
27
28 distinctions between *Strategic and Future Value of SIM*. First, whereas the former focuses on
29
30 what SIM allows the organization to achieve in terms of immediate performance-related effects,
31
32 as a direct result of engaging in SIM practices; the latter focuses on the ultimate outcome of such
33
34 actions in the long run, where SIM is thought to play (or not) a critical role. Second, while the
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36 areas of performance effects are concretely delineated in the case of *Strategic Value*, the
37
38 appreciation of success, in *Future Value*, is relative to the mission of the organization. It is worth
39
40 noting that some researchers (e.g., Cheng et al. 2014; Grieco et al. 2015; Moroz et al. 2018;
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42 Parker et al. 2019) treat future value as embedded into strategic value, when immediate/concrete
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44 and long-term/loose objectives and their intended effects are compressed into the same temporal
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46 and categorical space. We make such distinction in our examination of SIM.
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3 *Operational value of SIM* captures the perceived value of SIM in the present. Using single
4 selection (Yes/No), it assesses the social entrepreneurs' perception regarding the direct
5 contribution of SIM to the operation of the social enterprise and/or immediate outcomes, across
6 nine items: internal validation, communication with stakeholders, access to investment, selling
7 products, credibility, good management practice, part of the social enterprise's key
8 responsibilities, continuous improvement and other daily practices.
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11 *Civic society pressure* captures the degree to which non-governmental stakeholders have
12 influenced the achievement of the venture's objectives. We use a 5-point Likert scale that
13 assesses the perceived importance of clients, donors, partners, suppliers and beneficiaries for
14 social and commercial objectives. Likewise, *government pressure* uses a 5-point Likert scale to
15 capture the degree to which local (e.g. municipality) and central governments (e.g. development
16 agency), as appropriate, have influenced the achievement of the venture's objectives, as
17 perceived by the social entrepreneur. Our measure for *market pressure* seeks to capture the social
18 enterprise's competitive environment by examining the nature of the social enterprise's main
19 competitor, as per their legal form. We use dichotomous coding with (1) for for-profit
20 competitors and (0) for competitors from the third sector organizations. This, under the
21 assumption that traditional for-profit enterprises create a more competitive environment than
22 non-for-profit organizations, requiring social enterprises to formalize managerial practices,
23 particularly those related to social value creation, delivery and accountability (Dees, 2007;
24 Ebrahim & Battilana, 2014). Our measure of *Investors pressure* focuses on the amount of
25 investment rounds received by the social enterprise during the first three years of operation.
26 Drawing on Carman (2007), Christensen and Ebrahim (2006), and Benjamin (2013), who show
27 that measuring outcomes is oftentimes done in response to funders, we assessed investment
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3 rounds across three sources of external investment: venture capital, impact investment and seed
4 funding. We selected these sources as they can exert pressure early in the process and shape the
5 venture's accounting mechanisms. Finally, our measure for *Certification* captures the
6 presence/absence of standardized third-party certifications either these being process- or
7 outcome-based. Since this is a dichotomous variable, we coded this measure with 1 for
8 certification and 0 for no certification.
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19 **Calibration of outcome and causal conditions**

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21 In configurational research calibration is essential as it enables systematic comparison, ensuring
22 that the different measures conform to dependably known standards. Using theoretical
23 knowledge and/or distribution of raw scores, the research team specifies the score that would
24 qualify a case for full membership in the sets of social enterprises with formalized impact
25 measurement practices, as well as in the set of each of the causal conditions. Also, the score that
26 would completely exclude the cases from each of the sets. It does so by using an estimation
27 technique, automated in fsQCA 3.0 (Ragin & Davey, 2016) that transforms raw scores into set
28 measures (Ragin, 2007), rescaling the original measure into scores ranging from 0.0 to 1.0. In the
29 following we present our measures for both outcome and causal conditions, providing also
30 calibration rationale and thresholds for each of them³. In the following, we present the rationale
31 and thresholds for calibration for our set of outcome and causal conditions.
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47 For the outcome condition, *SIM formalization*, we applied direct calibration by coding with
48 0 the absence of SIM practices, with 0.5 those firms implementing some type of impact
49 measurement tool that is neither specialized (i.e. measuring change in condition) nor
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56 ³ The calibration table is available for the review process in Appendix B.
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3 standardized (i.e. externally validated), for example Facebook comments, satisfaction surveys
4 and website hits. While these are not impact-specific, they allow the organization to make early
5 sense of the impact they are having within their communities of beneficiaries. We coded with
6 0.75 those organizations that are using tools that are either particular to the social enterprise
7 sector e.g. units of service delivered, beneficiaries' testimonials, donors' perception of value or
8 are externally validated but are not specific to social enterprises, such as ISO9001 and tax
9 returns. Finally, we coded with 1 those organizations using SIM practices that are both specific
10 to social enterprises and externally validated such as B Impact Assessment, Randomized Control
11 Trials, Outcomes Star and SROI.
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24 To assess the stability of our emerging results, we recalibrated our outcome measure using
25 two alternative approaches. First, we created a crisp set coding with 1 all enterprises that have
26 initiated a SIM formalization process, regardless of the level of specialization or standardization
27 of the measurement type; and with 0 those enterprises that have not yet engaged in SIM
28 formalization. Second, we recalibrated the formalization efforts moving cases away from the
29 cross-over point (0.5), to enable the possibility of sharper contrasts between SIM formalization
30 and non-formalization. This procedure moves farther out of the set (0.25) those enterprises
31 implementing some type of impact measurement that is neither specialized nor standardized and
32 moves farther into the set those enterprises using either specialized nor standardized SIM tools.
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44 Our calibration of *business maturity* is based on the observed distribution of scores and the
45 principle of irrelevant variation. The average years of trading for our sample is 3 and the
46 standard deviation is 2.4. As such, our calibration thresholds are 1 (full out), 3 (cross-over point)
47 and >5 (full in). As per the principle of irrelevant variation (Ragin, 2007), any enterprise with 5
48 years of trading or more is considered as part of the set of mature social enterprises. Also using
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3 the observed distribution of aggregate scores as anchors, we calibrated *Strategic value of SIM*
4 using 22, 28 and 33 as thresholds for full exclusion, cross-over point and full inclusion in the set
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6 of enterprises with strong social orientation. For the *Future value of SIM*, we observe a skewed
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8 distribution of raw scores where respondents seem to over-estimate the role of SIM as inherent to
9
10 the future success of the social enterprise. To counterbalance this effect and using observed
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12 distribution of raw scores, we calibrated this measure using 3, 4 and 5 as calibration thresholds
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14 (i.e. 3=0.05, 4=0.5 and 5=0.95). In this case, setting the point of maximum ambiguity above the
15
16 middle of the scale reduces the possibility of leniency effects. For *Operational value of SIM*, the
17
18 average number of areas of impact is 3 and the standard deviation is 2.8. As such, our calibration
19
20 thresholds are 1 (full exclusion), 2.5 (cross-over point) and >6 (full inclusion). Drawing also on
21
22 the principle of irrelevant variation, any enterprise considering six areas of impact or more is
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24 deemed as part of the set of cases with strong operational value of SIM.
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31 For *Civic society pressure* we used the distribution of aggregate scores as anchors (average
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33 33.6; SD 10.3), and calibrated this measure using 24, 34 and 45 as thresholds for full exclusion,
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35 cross-over point and full inclusion in the set of enterprises perceiving strong pressure from civic
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37 society actors. As with the latter, for *government pressure* we used the observed distribution of
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39 aggregate scores as anchors (average 12.8; SD 5.8), and calibrated this measure using 8, 13, 18
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41 as thresholds for full exclusion, cross-over point and full inclusion in the set of enterprises
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43 perceiving a strong influence from government actors. Our calibration of *investors pressure* is
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45 based on the observed distribution of raw scores. The average investment rounds received by
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47 enterprises for our sample is 0.7 and the standard deviation is 1.1. As such, our calibration
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49 thresholds are 2, 1 and 0 for full inclusion, cross-over point and full exclusion in the set of social
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51 enterprises perceiving a strong influence from investors. Since *market pressure* and *certification*
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3 use dichotomous scores, the calibration procedure simply retains the Full in (1) and Full out (0)
4 distinction. In the former, 1 represents *market pressure* and 0 *no market pressure*, and in the
5 latter 1 means certification and 0 no certification. Table 2 presents descriptive and correlations
6 for our set of calibrated causal and outcome conditions.
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12 ---Insert Table 2 about here---
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15 ***Recalibration of causal conditions.*** In an effort to compare and assess the stability of the results
16 under alternative model specifications, we recalibrated the causal conditions forcing the fuzzy
17 scores downwards to create separate sets with “super strong” membership. By squaring the
18 membership scores (Ragin, 2000), this procedure allows to observe and contrast causal
19 relationships under lower degree of membership in the set of each relevant condition, where only
20 the cases with high membership scores will be retained as part of the set of SIM formalization.
21 This can have a major impact on patterns of necessity and sufficiency revealed in the main
22 analysis, cleaning the causal recipes if the stability of the results is confirmed.
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35 **Data analysis**

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37 Facing an empirical puzzle with nine explanatory conditions and 512 (2^9) logically possible
38 combinations of conditions for SIM, we conducted multiple necessity and sufficiency analyses.
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42 ***Analysis of necessary conditions.*** The analysis of necessary conditions in fsQCA looks at
43 which individual factors may be necessary or mostly necessary for the outcome to occur. By
44 focusing on the degree to which instances of an outcome agree in displaying the causal condition
45 thought to be necessary (consistency) and the empirical relevance of each causal condition
46 (coverage), it examines whether one of the configurational enablers is individually enough to
47 produce the formalization of social impact measurement. A condition can be deemed necessary
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3 when it surpasses the 0.95 consistency threshold while exhibiting a relatively high coverage
4 (~>0.8). In this analysis we test the subset relationships between the nine conditions and the
5 formalization and non-formalization of SIM. Results of the necessity analysis for SIM
6 formalization are reported in Table 3. The assessment of non-formalization of SIM is also used
7 and discussed below as part of the robustness tests.
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15 ---Insert Table 3 about here---

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17 Alongside revealing degrees of necessity, this analysis allowed us to retain the six causal
18 conditions with higher consistency levels in each of the two areas (marked in grey shading in
19 Table 3) to be used in the subsequent sufficiency analyses. All necessary conditions selected are
20 also empirically relevant, which means that the constraining effect of each necessary condition
21 may be great. As explained by Marx and Dusa (2011), the use of six conditions in intermediate-
22 Ns studies allows for balancing parsimony and explanatory richness. The use of a smaller
23 number of conditions (≤ 5) can indeed lead to a more parsimonious set of solutions, which is
24 essential to theorization, however it increases the likelihood of limited diversity. Similarly, seven
25 or more conditions can produce a fine-grained representation of reality, however, it can severely
26 impact the empirical relevance of the individual solution terms as the number of cases for each
27 might be too low. We run different configurational analyses using four, five, seven and eight
28 conditions and the results show that six conditions for 152 cases still offer the best explanation.
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45 *Sufficiency analysis.* The sufficiency analysis assesses and logically reduces all possible
46 combinations of conditions to the set of causal recipes that better explain the outcome of interest.
47 First, fsQCA constructs a truth table listing all 64 (2^6) logically possible combinations of causal
48 conditions along with the cases conforming to each combination. As expected, we did not find
49 evidence for all 64 possible combinations. The truth table presents 48 combinations of
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3 conditions, with 78 cases exceeding the minimum acceptable frequency and consistency
4 thresholds and 74 cases below the bar (See Appendix C). Based on frequency and consistency
5 thresholds⁴, fsQCA applies a Boolean algorithm based on a counterfactual analysis of causal
6 conditions to logically reduce the truth table rows to a solution table comprising simplified
7 combinations of conditions (Ragin et al., 2006), which can be understood as different solution
8 paths for SIM formalization.
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10
11 To untangle the empirical puzzle, we conducted multiple sufficiency analyses. First, we
12 explored causal recipes leading to the three alternative outcome specifications. This, with the aim
13 of finding the best model fit (using consistency and coverage criteria) and, once defined, testing
14 whether the main results remain stable. The two additional sufficiency analyses then become
15 robustness tests. We also looked at causal recipes leading to non-formalization of SIM. At times,
16 the explanation of the absence of something is more interesting and robust than the explanation
17 of its presence. This is normally discarded upfront by traditional linear methods and the
18 assessment of net effects. A negate analysis of the kind in fsQCA also allows for eliminating
19 alternative causal relationships by showing that these are causally weaker and the data at hand
20 better explain presence than absence. In a third set of analyses, we tested alternative frequency
21 and consistency thresholds to first observe which set of findings offer a better balance between
22 parsimony and empirical richness. Once established, the alternative assessments operate as
23 robustness tests, retaining the most empirically-relevant solution terms as the thresholds go up
24 and atomizing the solution terms, without showing radical discrepancies, as thresholds go down.
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26 In the following section we report the most stable set of results.
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⁴ The frequency threshold specifies the minimum amount of cases to be considered in the analysis. The consistency
56 threshold defines the minimum acceptable level to which a combination of causal conditions is reliably associated
57 with the each of the outcomes. Consistency thresholds of at least 0.8 and up to 0.95 are recommended.
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FINDINGS

Discovery #1: No necessary conditions

Before delving into the configurational assessment of SIM antecedents, we looked at which individual factors may be necessary or mostly necessary for SIM formalization. This is important for two reasons. First, it allows us to discard upfront trivial elements, despite evidence of importance attributed by studies in mature social sectors. Second, it increases our confidence on the selected set of elements, in the sense that promoting or removing them would have a significant effect on whether and how SIM is formalized.

Our initial observation of necessary conditions (Table 3) shows that no condition is necessary or almost necessary for the formalization of SIM, neither in its present nor its absent form. While this is not surprising, since necessary conditions are rare in social phenomena, the analysis provides an interesting perspective pertaining three espoused dimensions deemed central to formalization (certifications, business maturity and investment influence). Each of these dimensions exhibit significantly low consistency scores against their attributed importance in the literature. This is further confirmed by the relatively high consistency observed when these three are assessed in their absent form.

Discovery #2: Four sufficient solutions for SIM formalization

In this stage, we evaluated the different combinations of conditions that are linked to SIM formalization in terms of causal sufficiency as well as the strength of the causal relationships between the combinations of conditions and the outcome. For our main analysis, we used a frequency threshold of 1 and a consistency threshold of 0.8. Based on the truth table analysis and using these thresholds, fsQCA applies counterfactual analysis and logical minimization to reduce

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3 the 48 truth table rows to a set of simplified combinations of conditions, which constitute the
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5 main results shown in Solution Table 4⁵.
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8 **---Insert Table 4 about here---**
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10 Our main configurational analysis revealed four SIM approaches, which can be understood as
11
12 unique recipes for SIM formalization in emerging social sectors. The overall solution is highly
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14 consistent (0.81) and empirically relevant with a 0.81 coverage (superior to the 0.65 standard),
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16 with individual solution terms exhibiting equally consistent results ranging from 0.8 to 0.94.
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19 *Type 1 Forward-looking & outcome-driven SIM* presents a 2-condition configuration, with
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21 the presence of prospective value and operational utility of SIM acting in conjunction and
22
23 exhibiting a strong causal relationship with the outcome. This is the solutions showing the
24
25 highest raw and unique coverage scores, meaning that a large proportion of the cases are covered
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27 by the above-mentioned combination. It portrays SIM formalization as oriented toward building
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29 the future success of the business forged by the contribution it makes to the operation of the
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31 social enterprise and its immediate social outcomes. In forward-looking & outcome-driven social
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33 enterprises, SIM operates as a mechanism for understanding and communicating how
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35 improvements in current social and environmental impacts can contribute to the future success of
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37 the social venture.
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42 *Clothing-venture* is a social enterprise that collects and redistributes clothing using portable
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44 shops. It gives poor people access to good quality clothing and provides training around
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49 ⁵ The Solution Table distinguishes core and peripheral conditions. This is based on how causal components are
50 causally connected to a specific outcome. Core conditions are decisive causal ingredients that distinguish
51 configurations, and peripheral conditions act as complementary ingredients that only make sense as contributing
52 factors. In fsQCA, large black circles represent core conditions with small black circles being a reflection of
53 peripheral conditions. Circles with an X are used to indicate the absence of condition. No circle indicates that the
54 condition is irrelevant for explaining the outcome of interest.
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3 recycling and reusing discarded material, whilst diverting waste from landfills. Impact
4 measurement is focused on managerial aspects [operational value] of the social enterprise, using
5 qualitative and quantitative information pertaining tons of clothing diverted from landfills and
6 how families have been supported and benefited from their training initiatives. The benefits to
7 the community are quantified and disaggregated based on service lines and target groups. They
8 also use GIS to geo-reference their beneficiaries. All of the above is managed using software-
9 based social accounting and impact measurement. Despite the growing interest of local
10 governments and potential corporate partners, they have remained reluctant to engage in formal
11 partnerships [irrelevance of civic and government pressure]. Desired impacts are difficult to
12 achieve, since the founders observe there is still too much bureaucracy in local governments and
13 a fundamental value misalignment with potential corporate partners. Here, SIM focuses on
14 forging future business success [future value], despite the potential constraints posed by external
15 stakeholders. Given its focus on internal aspects [operational value] – processes and practices –
16 of the enterprise, little attention is given to stakeholder engagement and participation [irrelevance
17 of market pressure] and the appreciation of the potential effects in communities' conditions are
18 likely to be moderate yet knowing that social impact is likely to be tangled with future financial
19 results [future value].

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42 *Energy-venture* is a solar energy venture undergoing through a profound transformation,
43 from selling and installing solar panels to helping residents of social housing to save money.
44 While social impact has been part of *Energy-venture* since the beginning, such transformation
45 led the team to focus on sustainable architecture and eco-friendly housing for all, reorienting
46 state funds and subsidies toward creating green community benefits. Government funding is
47 either received by low-income families directly or awarded to large construction companies
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3 through private-public partnerships, so *Energy-venture* is not pressured by contractual
4 obligations to the government [irrelevance of civic and government pressure]. Impact
5 measurement in eco-friendly housing is linked primarily to savings in energy consumption
6 [operational value]. It is thus simple to communicate to all stakeholders enabling the venture to
7 secure long-term contracts [future value] within the construction industry. At the same time, it
8 facilitates continuous improvement [operational value] since the higher the energy savings the
9 more value the business produces. This has led *Energy-venture* to think about new services
10 associated with social finance and impact-oriented loans to low-income consumers. The central
11 aim is to monetize energy savings for the business today and tomorrow. As illustrated by
12 *Clothing-venture* and *Energy-venture*, *forward-looking & outcome-driven* social ventures are
13 likely to maintain a narrow reporting scope, focused almost exclusively on those key factors that
14 enable future-oriented learning, such as internal processes, enterprise social outcomes and
15 business performance. Such an approach leads to the use of informal communication and
16 reporting tools targeting internal audiences and management as primary interest groups.

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35 ***Type 2: Inward-looking & process-driven SIM*** presents a set of conditions marked by
36 presence of *operational value of SIM* and absence of *civic society pressure* as core conditions.
37 These are complemented by absence of *strategic value* and absence of *government pressure*,
38 which play only a peripheral role. This SIM type shows social enterprises formalizing SIM in
39 early stages as highly functional and part of an accelerated learning process, since they are not
40 yet open to external influence from societal or government actors. Indeed, these are required in
41 their absent form for SIM to get formalized. Here, *strategic value* is also absent reinforcing the
42 central role of *operational value*, which reveals a strong focus on the improvement of current
43 practices and immediate goals over future-oriented social missions.
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3 Social impact measurement in *inward-looking & process-driven enterprises* works as a
4 mechanism for understanding, learning and improving business processes and practices leading
5 to social and environmental impacts. *Software-venture* is a technology social venture that offers
6 Enterprise Resource Planning (ERP) software to small businesses. Competition is not relevant to
7 them since they do not seek to compete in the traditional ERP market space [irrelevance of
8 market pressure], operating as a social enterprise with prices ~30% below market average and
9 with a strong focus on sustainability resource management. While collaborations with civic
10 society groups and other social enterprises are valued by the founders of *Software-venture*, they
11 tend to slow-down the use of agile software development methods. In their view, partnering
12 work and empathizing with the struggles of other social actors take too much time and they are
13 already working with an extended network of collaborators in software development [~civic
14 society pressure]. Since the idea of a socially-oriented venture selling a sustainability software to
15 SMEs was a difficult sell to government agencies [~government pressure], *Software-venture*
16 decided to join up a roundtable discussion to understand policy directions, but remained focused
17 on the creation of new sustainability-related pieces of software and the development of new
18 services aimed at expanding their customer base.

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40 *Software-venture* is also focused on expanding its collective impact, including a novel crowd
41 radio and television service addressing inclusion issues across engineering students, seen as
42 future customers. Impact measurement is primarily associated with software engineering
43 [operational value], in terms of how much their technology products help socially-oriented SMEs
44 achieve their social goals; and likewise, how many unsolved needs of social enterprises can be
45 solved through their technology products. *Software-venture*'s impact materializes through their
46 customers' social impact, which also helps explain the absence of a *strategic value of SIM*. In
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3 addition, the latter condition is seen as embedded in the collaborative nature of the venture,
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5 which seems to render the *social mission* as redundant in relation to immediate performance-
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7 related effects [~strategic value] and reduce their attention to changes in beneficiaries'
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9 circumstances. Combined, the above illustrates the sole emphasis on the *operational value of*
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11 *SIM*, and why the other drivers are either absent or irrelevant for the formalization of SIM.
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15 In this sense, *inward-looking & process-driven* enterprises are likely to promote a distant
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17 engagement with external stakeholders as well as exhibiting an infrequent participation thereof,
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19 which seem to be more prominent when it comes to civic society and government actors. In the
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21 case of *Software-venture*, they distance themselves from government contracts and other social
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23 enterprises [~government and civic society pressure] that slow down product development and
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25 focus instead on speeding up close collaborations and learning, which is what ultimately triggers
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27 the formalization of SIM. As such, scope of reporting is likely to be even narrower than the
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29 previous type with low levels of accountability, using informal communication channels to
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31 report on improvements around business processes and practices to internal audiences only.
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33 *Inclusion-venture* is a consulting firm focused on fostering inclusion in the workplace
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35 particularly for vulnerable groups, such as people with disabilities or immigrants. As *Software-*
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37 *venture*, their impact is channeled through their clients, yet *Inclusion-venture's* inward-
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39 orientation and attention to learning [operational value] are amplified by their view of social
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41 innovation and the relationships they have established with funders.
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47 ***Type 3: Outward-looking & market-driven SIM*** is similar to the previous one at the core,
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49 with the presence of operational value of SIM and absence of civic society pressure as central
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51 conditions. However, these are complemented by presence of market pressure and absence of
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53 government pressure as drivers of formalization. This type focuses on the immediate goals and
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3 the improvement of practices, it does so by leveraging social impact measurement in response to
4 market demands. However, in order to respond adequately, these social enterprises require a low
5 degree of influence from external actors (e.g. clients, donors, partners, suppliers, beneficiaries)
6 and complete independence from government as they pursue social and commercial objectives.
7
8 When it comes to social development, the government's delineation of priority areas tends to
9 narrow down the scope and intensity of funding available to social enterprises. In addition, there
10 is no legal recognition for social enterprises, restricting bidding for government contracts, which
11 augments as a significant number prefers to avoid bureaucracy. Those that fall outside priority
12 areas and share those concerns, tend to see markets much more favourably for the development
13 of their social businesses, despite the competition. In this case, SIM functions as a mechanism
14 for understanding, monitoring and communicating social and environmental impacts, with
15 particular attention to the demands of market actors such as customer and competitors.
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31 Like *Software-venture*, *Recruitment-venture* also offers software solutions to third sector
32 organizations but focuses on volunteer recruitment and management. Like *Software-venture*,
33 they do not engage in partnerships with other social enterprises or governments [~civic society
34 and ~government pressure], as it slows down technology development. However, unlike the
35 previous type, *Recruitment-venture* works with large NGOs [market pressure] which normally
36 attract a larger pool of volunteers lacking sufficient financial resources to invest in new
37 managerial solutions. SIM is then focused on the work they do with and for large NGOs, in
38 terms of efficiency and coordination of volunteering work [market pressure]. Here, the size of
39 the market segment seems to play a role in how and why SIM is formalized and utilized.
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52 Attention to changes in markets requires a closer engagement with and more frequent
53 participation of different stakeholders, where customers and investors [market pressure] are
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3 likely to engage and influence the operation, outcomes and intended impacts of the social
4 enterprise. In this sense, it is expected a higher level of accountability, pertaining primarily to
5 how social and financial outcomes improve together [operational value]. This requires a broader
6 reporting scope than the previous types and a more formal and frequent communication to
7 market actors about the social enterprise's practices, outputs and impacts. *Consumption-Venture*
8 is a radical social enterprise, actively promoting a new way of doing business and donating 100%
9 of its profit to other NGOs. In order to enter quickly into the market and attract and interact with
10 as many customers as possible, they decided to focus only on crowded (ideally low-income)
11 market spaces (water dispensers, long-life and powder milk, toilet paper), which also exhibit low
12 entry barrier and equally low profit margins. Competition in these markets tends to be strong
13 demanding particular attention to market needs and changes [market pressure], which led
14 *Consumption-Venture* to constantly learn from markets and adapt its product portfolio in
15 consequence [operational value]. Since donation is the key for *Consumption-Venture*, impact is
16 measured through the amount of quarterly and aggregate contributions they make to other NGOs,
17 which is directly related to the enterprise's operational efficiency and profit [operational value].

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38 ***Type 4: Outward-looking & public-driven SIM*** portrays social enterprises highly oriented
39 toward solving social problems, most likely in response to government demands or in
40 collaboration with public sector actors. As with the other solution terms, the presence of
41 operational value of SIM is also a core condition, but for serving the delivery of social goals
42 rather than competitive improvements facing market pressures. This SIM type shows social
43 enterprises highly committed to delivering on their social mission and formalizing SIM in line
44 with requirements from public sector, either due to contractual obligations or as recipients of
45 public funds. Uniquely for outward-looking & public-driven enterprises, SIM is enabled by the
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3 social enterprise's social mission. It works as a mechanism for understanding, monitoring and
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5 communicating the social mission and derived impacts, primarily in response to regulatory
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7 requirements.
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10 *Projects-Venture*, for example, is an umbrella social enterprise that develops social projects
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12 supported by different government agencies [government pressure]. Social projects are incubated
13
14 and spin-off when they reach their potential in terms of social outcomes and financial viability.
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16 Its portfolio approach and funding sources reduce the importance of potential market competition
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18 [~market pressure]. Here, SIM formalization emerges from experimenting and learning about the
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20 alternative ways in which social outcomes can be optimized [operational value]. Most of
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22 *Projects-Venture's* portfolio is connected to government support programs [government
23
24 pressure]. This relationship goes beyond subsidies, grants and seed funding. *Projects-Venture*
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26 collaborates with local governments in both policy design and service delivery [government
27
28 pressure], and SIM allows them to gain legitimacy and form partnerships facing local
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30 organizations and municipalities reluctant to engage with for-profit social enterprises [strategic
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32 value]. The measurement system *Projects-Venture* utilizes is heavily reliant on highly
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34 legitimized SIM tools, in this case randomized control trials, which are aligned with the way in
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36 which the government conducts the cost-benefit analysis of prospective social programs
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38 [operational value]. SIM is closely link to both the delivery of cost-effective social interventions
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40 and performance of the social enterprise [strategic value]. An intensive measurement system,
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42 such as randomized control trials (RCTs), involves high attention to changes in circumstances
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44 experienced by the enterprise's beneficiaries.
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51 *Outward-looking & public-driven* enterprises show closer engagement and more frequent
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53 interactions with stakeholders, particularly with government actors. Here, both regulator and
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3 governmental agencies are likely to engage and influence the social enterprise's practices,
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5 outcomes and intended impacts. This requires extensive reporting and a more formal and
6
7 frequent communication with the regulator about whether and how the intended impacts are
8
9 being achieved, since it is likely that outcomes will trigger payments. In this sense, a high level
10
11 of accountability is required and expected, yet only a moderate attention to the financial
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13 outcomes of the social enterprise's commercial operation. *Education-Venture* illustrates the
14
15 latter. This social enterprise focuses on environmental education, targeting primarily council
16
17 schools in rural areas and aligned with the national plan for communal development [government
18
19 pressure]. Although the venture is still in its developing phase, *Education-venture* collects
20
21 evidence from parents regarding whether children and their families are more or less aware of
22
23 the environmental problems around them. These perceptions inform the design of new
24
25 environmental education programs [operational value]. The standardized tests used are linked to
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27 the local councils' community development plans and sustainability strategies. Since these rural
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29 communities are highly dependent on sustainable tourism, local governments are open to directly
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31 fund external providers of environmental education.
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40 **Discovery #3: Counterintuitive patterns across types**

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42 Table 4 also reveals interesting patterns across types, pertaining to the prominence and
43
44 counterintuitive roles of some individual conditions. First, the *operational value* of SIM is
45
46 prominent across solution terms and central to SIM formalization, being the only condition
47
48 present across all solutions. Second, the *strategic value of SIM* traditionally derived from the
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50 venture's social mission appears as peripheral to SIM formalization at best. This is
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52 counterintuitive as the social mission is normally assumed as instrumental to forging prosocial
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3 decision-making in social enterprises. This might relate to the emergent nature of our context,
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5 where the immediate, concrete performance-related effects of incipient SIM practices might not
6
7 be yet in the scope of possibilities for new social enterprises. Or perhaps the relationship between
8
9 SIM formalization and e.g. customer acquisition is not immediately evident for the founders of
10
11 social ventures. This requires further examination since the absence of strategic considerations
12
13 may be detrimental for SIM formalization and the performance of the social enterprise more
14
15 broadly.
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19 The absence of *civic society pressure* as a core condition is also counterintuitive (Types 2
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21 and 3), because this means that SIM formalization tends to prosper in the absence of external
22
23 actors exerting influence on the social enterprise whilst in pursuit of social and economic
24
25 objectives. Finally, given the lack of regulation and the absence of an appropriate legal form for
26
27 social enterprises to operate and compete in their own categories, one would expect to find a
28
29 wide-spread perception of weak or non-existent pressure from the *market and government*
30
31 *actors*. However, we did find evidence of influence in Types 3 and 4 respectively. Interestingly
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33 in Types 3 and 4, the role played by *regulation* and *competition* in SIM formalization seems to
34
35 be mutually exclusive. This occurs when market competition is present and government
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37 influence is absent, and vice-versa. We suspect that this is due to the reality that social
38
39 enterprises tend to prioritize one over the other as main source of income. For example, receiving
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41 grants or subsidies for social action appears to be in conflict with trading with final consumers.
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43 At least in the context of SIM formalization it seems that these two cannot co-exist as drivers.
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45 Yet, hybridity in social enterprises involves the combination of social and commercial missions,
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47 strategies and practices, which are assumed to exist in balance. Our findings illustrating mutual
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3 exclusivity in two of the four types, calling into question the notion of hybridity in social impact
4 measurement.
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10 **Sensitivity and robustness tests**

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12 To confirm the stability and robustness of the results we conducted several exploratory analyses
13 that also conform three sensitivity tests. We did so by readjusting the calibration and frequency
14 thresholds and rotating conditions and outcomes. This allows us to test whether our results and
15 inferences, particularly those relating to causal necessity and sufficiency, are robust to the use of
16 alternative specifications. In a first type of assessment, we conducted two configurational
17 analyses using alternative outcome specifications. As mentioned above, we recalibrated the
18 outcome measure to create first a crisp set and move the middle points toward the extremes. As
19 seen in Table 5, the results remain stable. Table 5 with a dichotomous outcome mirrors Table 4,
20 but losses overall empirical coverage. While it offers a more balanced empirical distribution,
21 individual coverage scores drop in empirical significance leaving relevant cases outside of the
22 solutions. The second analysis combines solutions 2 and 3 from the main analysis forming a
23 super set (\sim strategic*operational* \sim civic* \sim gov*market). In doing so, it losses empirical
24 significance (solution coverage of 0.153) covering a small proportion of the sample. We run a
25 third configuration analysis with “super strong” membership. As explained above, this is done by
26 squaring the membership scores and pushing the scores downwards. As seen in Table 6, patterns
27 of necessity and sufficiency remain stable showing simply a more atomized view of the solution
28 space.
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51 We also run negate sufficiency and necessity tests, to eliminate alternative explanations
52 regarding possible causal relationships between conditions and absence of the outcome; i.e. Non
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3 formalization of SIM (Tables 7 and 3). The results also confirm the stability of the main results,
4 showing that the absence of operational value leads to non-formalization of SIM (core and
5 dominant condition in Table 7 and consistent in Table 3). The sufficiency analysis reveals
6 however an interesting new pattern. It brings to the fore the effect of absence of market
7 competition as core condition in non-formalization. This suggests that social enterprises
8 competing against other third sector organizations might have less incentives or feel less
9 compelled to formalize SIM than those competing against for-profit firms. This pattern is not
10 salient in the main analysis. Although further tests are needed given the relatively low
11 consistency score in the necessity analysis (0.638 see Table 3), this finding calls into question the
12 assumed effect of isomorphic mimicry in the social sector, particularly in cases where formal
13 rules or guidelines are not yet established. Similarly, in the case of absence of certification,
14 which shows in Table 3 above relatively high consistency (0.85) and coverage (0.60) scores in
15 relation to non-formalization. We presume that this relates to a social sector in early stages of
16 development, at least in terms of templates, guidelines and legal apparatus available to social
17 enterprises. We can infer that in such cases voluntary certifications follow from emerging
18 measurement practices, despite the legitimacy it is assumed to confer to social enterprises.
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40 **---Insert Tables 5, 6 and 7 about here---**
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44 **DISCUSSION**

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47 To date, the existing literature does not lend theoretical perspectives on how and why social
48 entrepreneurs, in social sectors lacking formal social accounting guidelines and templates,
49 voluntarily choose to engage in and develop SIM. This entails a spontaneous emergence in
50 contexts where it is not required, no guidance is offered and there are no immediate benefits.
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3 This constitutes a fundamental problem in our knowledge of social impact measurement (SIM)
4 and social entrepreneurship more broadly. Arguably, everything we know about SIM
5 formalization as antecedents and outcomes has been explained by looking at institutionalized
6 governance and accountability mechanisms.
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12 SIM formalization constitutes an important form of governance, since outcome
13 measurement in social enterprises can significantly strengthen downward accountability
14 (Benjamin, 2013), i.e. understood as the processes by which founders are held accountable to the
15 people at lower levels or the ability of beneficiaries to hold the social enterprise to account. This
16 in turn is central to demonstrating that social ventures are enabling social, environmental and
17 economic outputs, outcomes and change. Yet, we simply do not know how the measurement of
18 social value and governance mechanisms work for social ventures in emerging social sectors. To
19 address this issue, we mapped the responses of 152 social entrepreneurs in Chile and explored
20 alternative combinations of institutional and organizational factors that might enable SIM
21 formalization. Our research reveals four approaches through which social enterprises design and
22 implement SIM: *forward-looking & outcome-driven; inward-looking & process-driven;*
23 *outward-looking & market-driven; outward-looking & public-driven.* These findings show, that
24 in contexts with no structured governance or enforcement of SIM, it can emerge in a variety of
25 ways. Not only can SIM take many forms in contexts with no structured governance or
26 enforcement mechanisms, but it materializes in the absence of factors assumed central in more
27 established social sectors, as is the case of certifications, maturity and pressure from investors.
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49 Drawing on our discoveries, interview data and inferential work, in Table 8 we offer an
50 empirical typology of SIM formalization. For each type, we provide a structured definition
51 comprising basic conceptualization of the approach, likely focus of SIM attention, orientation
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3 and scope, along with an empirical illustration using interview data. As with previous fsQCA
4 research (e.g. Muñoz et al., 2020; Kimmitt et al., 2020), each line constitutes a theoretical
5 statement in itself. Combined, they provide a systematic characterization of SIM formalization,
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7 whilst offering a basis for organizing the study and guiding the practice of social impact
8 measurement.
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15 ---Insert Table 8 about here---
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19 **Contributions**

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21 This paper contributes to literature by expanding our understanding of SIM (Wry & Haugh,
22 2018). We offer surprising yet consistent relationships that emerge by exploring a new context
23 through a multi-level, configurational theoretical lens. The counterintuitive nature of our
24 empirical discoveries seems central to the growing, yet still scarce, debate around governance
25 and accountability in social venturing (Grimes, 2010; Molecke & Pinkse, 2017; Rawhouser et al.
26 2019; Saebi et al. 2018). We do so in a number of ways.
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35 First, most of our collective efforts have been focused on conceptualizing and measuring
36 social impact as output (Rawhouser et al., 2019), yet little is known about what factors might
37 trigger SIM and how such factors combine to enable alternative conceptualizations and
38 measurements. Our analyses reveal an array of alternative solutions for SIM, showing a much
39 more varied reality than originally thought. Our four SIM approaches shed light on the
40 combinations of antecedents underlying such diversity, suggesting that the how to “do” outcome
41 measurement is contingent upon combinations of venture- and contextual-level factors, not just
42 guidance provided by institutionalized governance and enforcement. These are unexpected, yet
43 consistent discoveries for which a priori predictions would have been unreasonable (Robinson,
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3 2019). Molecke and Pinkse (2017) offer an interesting explanation for how social entrepreneurs
4 handle the pressure to measure social impact using a bricolage lens. While bricolage is promising
5 for our understanding of spontaneous emergence, their examination focuses on formal
6 methodologies and the strategic handling of accountability. Our findings expand Molecke and
7 Pinkse's (2017) contribution by showing "forms of bricolage" in the absence of formal
8 methodologies and strategies. This also becomes a relevant expansion of Di Domenico, Haugh
9 and Tracey's (2010) work on social bricolage. Most notably, our findings expand Benjamin's
10 (2013) analysis of accountability paths. The author argues that the studied normative
11 measurement guides were neither uniform in the conceptualization of beneficiaries, nor in how
12 they directed social enterprises to use impact measurement. We show the "complex how" behind
13 such non-uniformity and use. What this also tells us is that in emerging social spaces efforts to
14 monitor social and commercial activities, managers' performance, and downwards
15 accountability, as Ebrahim, Battilana and Mair (2014) argue, may not be sufficient to resolve the
16 many of accountability challenges faced by social enterprises.

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Second, we bring to light the actual importance of a number of factors generally deemed central to SIM formalization, namely: certifications, business maturity and investment influence. This is counterintuitive in light of our current understanding of the effects of those variables on SIM formalization. We show inconsistent relationships across the three factors, challenging current knowledge and intuition. These are unexpected findings. In the case of certification, one might expect for it to increase the degree of SIM formalization as the social venture engages with voluntary schemes requiring paying close attention to indicators and reporting on targets met (Wry & Haugh, 2018). Moreover, certifications are deemed central to category distinctiveness which affect members' actions in important ways (Gehman & Grimes, 2017). Finally,

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3 investment is allocated against promises of future value, in this case both social and commercial.
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5 Thus, one would expect that the more investment social enterprises receive across different
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7 investment rounds, the stronger the demands from investors, through contractual obligations, for
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9 social enterprises to measure and report on social impact as reliably as possible, hence forcing
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11 them to formalize measurement practices (Nicholls, 2009). Drawing on US data from the
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13 *National Venture Capital Association*, Miller and Wesley (2010) found that indeed social
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15 investment focus influences the way social entrepreneurs frame social value. None of the latter is
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17 supported by our evidence, challenging grounded assumptions in this domain. This is further
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19 confirmed by the relatively high consistent relationships observed when these three are assessed
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21 in their negative form.
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26 In empirical terms, we offer evidence and ways of capturing SIM and its antecedents in a
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28 social venturing context. Most of the research on SIM has relied on measurement practices and
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30 data intended for large corporations, as shown by Rawhouser et al. (2019). KLD index, GRI
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32 reporting and similar are certainly relevant, yet inadequate to explain entrepreneurial
33
34 phenomena. Hall et al. (2015) paved the way by showing how emergent processes leading to
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36 SROI can be captured. However, the use of key actors in the US, UK and Continental Europe
37
38 might be problematic for inferential work. As previously argued, we suspect in that case the
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40 explanation of SIM formalization as outcome and its antecedents are actually informed by the
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42 institutionalized governance and accountability mechanisms already in place. Our research offer
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44 insight into how to measure, collect, analyze and report evidence on SIM which is pertinent to
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46 entrepreneurship scholarship.
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51 ***Future research.*** We believe our SIM findings open up interesting avenues for future
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53 research, most notably in the areas of formalized prosocial performance, legitimacy,
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3 accountability and our understanding of social impact more broadly. In terms of performance,
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5 future research can move the investigative focus beyond outputs and outcomes and look at inputs
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7 and activities instead, and the learning mechanisms involved in SIM. These are fundamentally
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9 different approaches to appreciating the value of SIM and can help us better understand why
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11 social ventures approach SIM in the way that they do. In terms of accountability, one could
12
13 expect that, as with most management practices, formalization of SIM will increase as the
14
15 enterprise gains maturity. Social and financial reporting and audits become mandatory as the
16
17 firm grows (Nicholls, 2009). Without a better understanding of SIM, addressing the challenges
18
19 of materiality, uncertainty and empowerment of social enterprises will be difficult (Nicholls,
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21 2018). SIM brings materiality, accountability and therefore legitimacy to the foreground and into
22
23 focus. This is especially so in the context of emerging economies, where accountability is less
24
25 formalized. Studies that replicate our findings will help to refine of our SIM protocol and will
26
27 simultaneously broaden the extant literature of social auditing and the production of legitimacy
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29 (Power, 2003). This has theoretical applications to our understandings of the antecedents and
30
31 mechanisms for measuring, monitoring, and reporting social impact. Finally, much more needs
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33 to be done to advance our understanding of actual social impact. Our analyses show novel
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35 approaches to SIM, but whether and how these different approaches lead to more impact is yet to
36
37 be uncovered. This is important because social impact is what SIM is supposed to facilitate.
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39 What is problematic at this stage to advance research in these areas is the lack of novel data and
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41 approaches to data collection. For example, the temporal and causal links between inputs,
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43 activities, outputs, outcomes and impact, which SIM aims to capture and report on, are elusive
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45 from a research point of view. We can either seat and wait until these connections finally
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3 materialize or find creative ways to explore and explain possible futures and hidden causes.
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5 AMD welcomes commentaries. We look forward to our colleagues' reactions.
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8 ***Practical implications.*** Our findings also offer a set of practical guardrails for entrepreneurs
9
10 interested in social impact. Certifications, business maturity, and investment influence are not as
11
12 critical as previously thought. While they might contribute to further clarity regarding what
13
14 actually enables impact measurement, they are not a silver bullet for learning or performance in
15
16 social ventures. Additionally, practitioners can see from this study that a 'one size fits all'
17
18 approach to SIM is myopic at best. Social and environmental audits, with their associated
19
20 certification, are highly complicated with varying trajectories and outcomes (Gamble et al.,
21
22 2020; Moroz & Gamble, 2020; Parker et al., 2018). While certifications may be indicators of
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24 professionalism (Hwang & Powell, 2009) there is evidence in our findings that a disconnect
25
26 exists between social accounting, SIM and its formalization. Even though SIM is becoming a
27
28 mainstream staple in business disclosures, entrepreneurs should question garden variety
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30 certification trends and engage with accountability protocols that best push and represent their
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32 core values.
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40 **Concluding remarks**

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42 Social impact measurement has evolved into an important area of theoretical and practical
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44 importance for purposes of accountability and governance. Yet, why and how social enterprises
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46 formalize SIM in social sectors lacking formal guidelines and templates guiding SIM remains
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48 unknown. Our empirical findings uncover counterintuitive findings and novel approaches to
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50 SIM, which we hope will help to advance a growing and important field of research.
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TABLES AND FIGURES

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TABLE 1
Interview participants

Social enterprise	Activity => key impact	SIM measurement
<i>Clothing-venture</i> (2014)	Clothing recycling for low income families through portable shops => Reduce waste to land fields	Tons of clothing diverted from land fields Inflows and outflows of recycled material Number of beneficiaries who had received recycled clothing Number of beneficiaries, workers who have gone through recycling training Interviews with users
<i>Education-Venture</i> (2015)	Environmental education for schools in rural areas => Increase Environmental awareness of children and families	Satisfaction with and general feedback on environmental courses provided (children and parents). Indirect impact captured through municipalities' environmental surveys Interviews with users
<i>Recruitment-venture</i> (2015)	Social enterprise support (access to volunteers and software) => Increase efficiency and awareness of the impact of social enterprises in Chile	Feedback over Facebook
<i>Consumption-Venture</i> (2009)	Bottled water and donation of profits to NGOs in need of support => Provide NGOs supporting disadvantaged people with access to funding => Increase awareness of the impact of social enterprises in Chile	Funds donated to NGOs B Corp certification in progress
<i>Sustainability-venture</i> (2013)	Recycling and sustainability actions through incentives => Change people's attitudes towards recycling and sustainability	Users' CO2 emissions Number of new sustainability actions users engage with. Interviews with users
<i>Software-venture</i> (2007)	Enterprise resource planning software for small businesses (focus on sustainability) and technology development (e.g. e-commerce platforms) for social enterprises. => Improve work of social enterprises => Provide organizations with technology for sustainability	Number of clients adopting sustainability software Interviews with users Visitors to tech fair stand
<i>Projects-Venture</i> (2011)	Social enterprise incubation platform => Nurture change-makers => Entrepreneurship support in disadvantaged communities	B Corp certified Future impact of change-makers Community impact (e.g. job creation, access to funds, partnerships) RCT under development
<i>Inclusion-venture</i> (2014)	Consulting services focused on inclusion in the workplace => Change the way organizations do	Number of consulting services provided Interviews with users (businesses and

	business	workers)
		Proprietary SIM methodology under development (to include e.g. financial impact of inclusion)
<i>Energy-venture</i> (2014)	Sustainable architecture and solar panels ⇒ Improve energy efficiency in social housing	Energy savings, using government's standardized measurement system Proprietary SIM methodology under development (to include e.g. non-financial impacts)
<i>Science-venture</i> (2014)	Science and technology for disadvantaged communities ⇒ Improve access to science and technology ⇒ Increase awareness of sustainable living in disadvantaged communities	Number of teachers and children using technology Behavioral change in new technology users (e.g. learning environmental actions through gaming)
<i>Parks-venture</i> (2010)	Collaborative restoration of parks and public spaces in disadvantaged areas ⇒ Improve quality of life, social cohesion, sense of belonging in disadvantaged areas	RCT Use of restored public spaces and parks Users' perception before / after intervention (e.g. security, local participation)

TABLE 2
Descriptive and correlations

	Mean	SD	1	2	3	4	5	6	7	8	9
1 Business maturity	0.4342	0.3944									
2 Strategic value	0.5464	0.3716	0.011								
3 Future value	0.6889	0.3676	-0.034	.378**							
4 Operational value	0.4668	0.4205	.180*	.173*	.268**						
5 Civic society	0.5080	0.3751	0.012	.244**	.324**	0.152					
6 Government	0.5193	0.4024	0.014	0.093	0.072	0.009	.555**				
7 Investors	0.3156	0.3734	-0.098	0.056	-0.067	-0.106	0.026	.166*			
8 Market	0.38	0.487	0.041	-0.044	-0.094	0.104	-.160*	-.197*	0.039		
9 Certification	0.19	0.394	.207*	-0.025	-0.026	0.129	0.017	-0.069	-0.079	0.032	
10 SIM formalization	0.4262	0.3638	0.156	.176*	.312**	.772**	0.041	-0.079	-0.06	0.067	.191*

* 0.05, ** 0.01

TABLE 3

Analysis of necessary conditions for SIM formalization and non-formalization

Condition tested	SIM formalization				SIM non-formalization			
	Presence of condition		Absence of condition		Presence of condition		Absence of condition	
	Consistency	Coverage	Consistency	Coverage	Consistency	Coverage	Consistency	Coverage
Future value of SIM	0.853414	0.527954	0.269186	0.368921	0.657926	0.547892	0.433151	0.799103
Operational value of SIM	0.835201	0.762557	0.341066	0.272668	0.324141	0.398380	0.806804	0.868250
Strategic value of SIM	0.690097	0.538286	0.480120	0.451204	0.566184	0.594486	0.560267	0.708761
Business maturity	0.552371	0.542194	0.586451	0.441823	0.449605	0.594070	0.653522	0.662764
Certification	0.254785	0.569207	0.745215	0.392528	0.143249	0.430793	0.856751	0.607472
Civic society pressure	0.612459	0.513836	0.554702	0.480602	0.554660	0.554660	0.569520	0.664228
Government pressure	0.565429	0.464096	0.579783	0.514097	0.592912	0.655092	0.514963	0.614663
Market pressure	0.409242	0.457138	0.590758	0.407170	0.361028	0.542862	0.638972	0.592830
Investment pressure	0.349849	0.472445	0.764277	0.476006	0.374994	0.681674	0.709788	0.595075

TABLE 4
Solution Table: Alternative SIM approaches

Configurations	Types			
	1	2	3	4
Strategic value of SIM	-	⊗	-	●
Future value of SIM	●	-	-	-
Operational value of SIM	●	●	●	●
Civic society pressure	-	⊗	⊗	-
Government pressure	-	⊗	⊗	●
Market pressure	-	-	●	⊗
Consistency	0.8	0.94	0.92	0.84
Raw coverage	0.72	0.259	0.22	0.27
Unique coverage	0.24	0.018	0.011	0.012
<i>Derived SIM approaches</i>	<i>Forward-looking, outcome-driven</i>	<i>Inward-looking & process-driven</i>	<i>Outward-looking & market-driven</i>	<i>Outward-looking & public-driven</i>
Overall consistency	0.81			
Overall coverage	0.81			

TABLE 5
SIM formalization with dichotomous outcome

Configurations	Types			
	1	2	3	4
Strategic value of SIM	-	⊗	-	●
Future value of SIM	●	-	-	-
Operational value of SIM	●	●	●	●
Civic society pressure	-	⊗	⊗	-
Government pressure	-	⊗	⊗	●
Market pressure	-	-	●	⊗
Consistency	0.97	0.95	0.98	0.98
Raw coverage	0.59	0.18	0.16	0.22
Unique coverage	0.23	0.013	0.014	0.012
<i>Derived SIM approaches</i>	<i>Forward-looking, outcome-driven</i>	<i>Inward-looking & process-driven</i>	<i>Outward-looking & market-driven</i>	<i>Outward-looking & public-driven</i>
Overall consistency	0.97			
Overall coverage	0.67			

Frequency cutoff: 1; Consistency cutoff: 0.851

TABLE 6
SIM formalization with super strong membership in causal conditions

Configurations	Types					
	1 (2*)	2 (1*)	3 (1*)	4 (1*)	5 (4*)	6 (3*)
Strategic value of SIM	⊗	-	-	●	⊗	-
Future value of SIM	-	●	●	●	-	-
Operational value of SIM	●	●	●	●	●	●
Civic society pressure	⊗	⊗	-	●	●	⊗
Government pressure	⊗	-	⊗	-	●	⊗
Market pressure	-	⊗	⊗	-	⊗	●
Consistency	0.94	0.90	0.93	0.88	0.86	0.91
Raw coverage	0.31	0.20	0.20	0.28	0.10	0.22
Unique coverage	0.022	0.035	0.026	0.096	0.025	0.0015
Overall consistency				0.85		
Overall coverage				0.69		

* Equivalent solution from main solution table 4. Frequency cutoff: 1; Consistency cutoff: 0.836

TABLE 7
SIM non-formalization

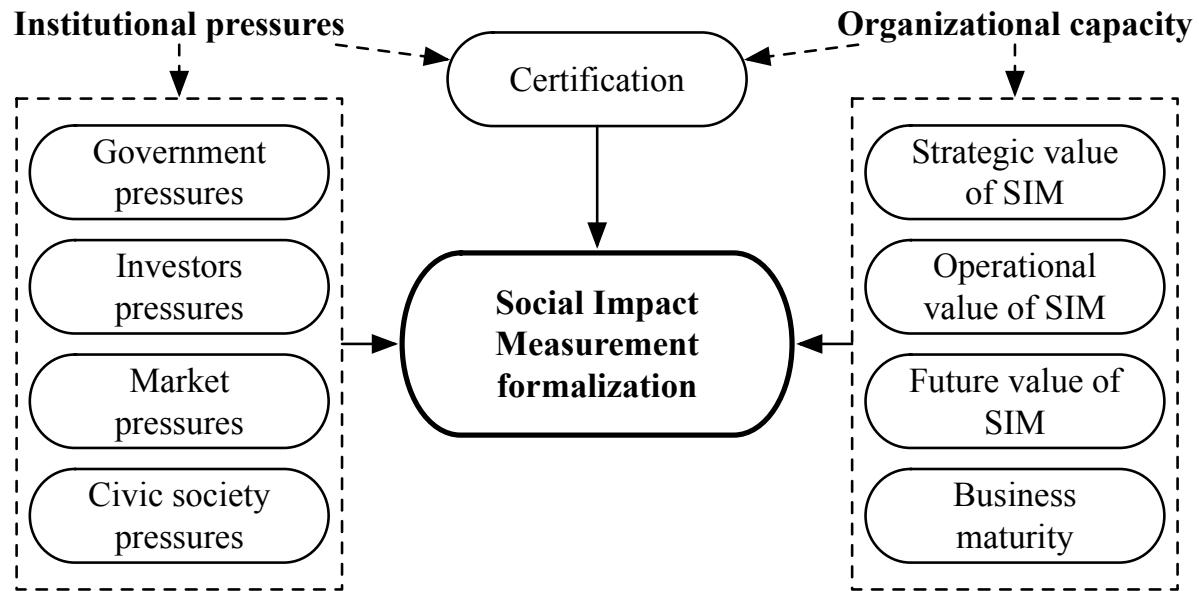
Configurations	Types					
	1	2	3	4	5	
Strategic value of SIM	●	⊗	⊗	●	⊗	
Future value of SIM	●	-	⊗	●	-	
Operational value of SIM	●	⊗	⊗	⊗	⊗	
Civic society pressure	⊗	⊗	-	-	●	
Government pressure	●	⊗	●	⊗	●	
Market pressure	●	⊗	⊗	⊗	⊗	
Consistency	0.84	0.92	0.98	0.85	0.87	
Raw coverage	0.049	0.158	0.12	0.118	0.138	
Unique coverage	0.049	0.009	0.0025	0.0056	0.0066	
Overall consistency				0.85		
Overall coverage				0.465		

Frequency cutoff: 3; Consistency cutoff: 0.847

TABLE 8
SIM approaches: conceptualization and evidence

Type	SIM basic conceptualization	Likely focus of attention, orientation and reporting scope	Empirical illustration
Forward-looking & outcome-driven	Mechanism for understanding and communicating how improvements in current impacts contribute to the future success of the venture	Focus on business performance, oriented toward enabling future success of the venture. SIM is likely to be narrow, informal and focused primarily on internal audiences	We are reluctant to establish relationship with private investors and similar stakeholders. Some large companies have contacted us for their CSR strategies, but nothing serious yet... We started working recently with La Vicuna Council, fast and close because they are small, but no formal contract yet (<i>Clothing</i>)
Inward-looking & process-driven	Mechanism for understanding, learning and improving processes and practices leading to impacts	Focus on internal processes, oriented toward learning about organizational processes and practices. SIM is likely to be narrow, informal and focused only on internal audiences	We also offer ad-hoc service management software, and also creating e-commerce platforms for SMEs. We are also exploring other types of projects involving HSEC standards -Health Safety Environment and Community, which are specific platforms for measuring or development of metrics related to environmental impact and community inclusion, particularly for SMEs that are integrating sustainability in their business models (<i>Software</i>). For those of us who want to make social innovation, there are no funds that understand our dynamics, because private funds seek to maximize profitability and social funds seek to maximize social returns. We do both at the same time (<i>Inclusion</i>).
Outward-looking & market-driven	Mechanism for understanding, monitoring and communicating impacts facing market demands	Focus on market demands, oriented toward aligning impacts with market expectations. SIM is likely to be broad scope, more formal and focused on external audiences, primarily market actors	The first obvious impact is the donation made to the NGOs, which is central for them. Children Foundation [anonymized] has just launched a spectacular new event and our donation has been part of that. Sometimes, our contribution is what enables them to stay afloat. There is also the impact of the model itself that has been replicated by other companies. When we started we were the only ones doing this, now we are leaders in the field of social entrepreneurship, motivating many to do the same with their own ventures. So there is impact at the ecosystem level. Now, we measure donations and nothing else (<i>Consumption</i>)
Outward- looking & public-driven	Mechanism, enabled by social mission, for understanding, monitoring and communicating impacts facing regulatory requirements	Focus on regulatory requirements, oriented toward aligning mission and impacts with regulatory requirements. SIM is likely to be extensive, more formal and focused on external audiences, primarily regulator	We work very close to the public sector because they are the ones who work in the communities where we operate in. The National Service for Women, Technical Assistance, Tourism, all these government agencies. Then everything we do is connected to what they do, we all see the same needs and try to solve the same problems together (<i>Projects</i>). We have been able to measure it through surveys where, for example, parents are asked how the importance of our program... and everyone agree, they like the idea. We are measuring how people feel about the idea, those in favor and against it. And the truth is that we have 90% in favor. This high rate is important to us, because it [the council] demands social development. We are part of the Community Development Plan, which is all about building a sustainable community around critical areas: tourism, energy, water, etc. (<i>Education</i>)

FIGURE 1
SIM framework: Configural antecedents



APPENDIX A
Measurement details

Construct	Questions and scoring
Future value of SIM	Please indicate the extent to which you agree with the following statement (1-5 scale) <ul style="list-style-type: none"> • Measuring our social and/or environmental (as appropriate) impact is central to the future success of our social enterprise
Operational value of SIM	Why do your social enterprise utilize tools to assess its social and/or environmental (as appropriate). Select all of those that apply to you: <ul style="list-style-type: none"> • Internal validation • Improve communication with stakeholders • Access to investment • Selling products • Credibility • Good management practice • Part of the social enterprise's key responsibilities • Continuous improvement • Other daily practices
Strategic value of SIM	In relation to your social enterprise, please indicate the extent to which you agree with the following statements (1-5 scale) <ul style="list-style-type: none"> • In general, the social component of our enterprise gives us a competitive advantage • Our social enterprise would be more profitable if we remove the social component (inverted measure) • The social component of our enterprise influence the buying decisions of our customers • The social component of our enterprise helps us recruit and retain employees • The social component of our enterprise helps us sell products and/or services • The social component of our enterprise helps us establish valuable relationships with suppliers • The social component of our enterprise helps us form strategic alliances with other organizations
Business maturity	Approximately, for how long your social enterprise has been selling products / services in the market? <ul style="list-style-type: none"> • ___ years
Certification	Does your social enterprise have some form of certification? (relevant to this study) <ul style="list-style-type: none"> • Yes • No
Civic society pressure	In scale from 1 to 5, how important are the following stakeholders for the achievement of your social and commercial objectives? <ul style="list-style-type: none"> • Clients • Donors • Partners • Suppliers • Beneficiaries

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	<p>Government pressure</p> <p>Market pressure</p> <p>Investment pressure</p>	<p>In scale from 1 to 5, how important are the following stakeholders for the achievement of your social and commercial objectives?</p> <ul style="list-style-type: none"> • Local government Local (for example municipality) • Central government • Government agencies (for example, Economic Development Agency) <p>Of the following list, what type of organization is your main competitor?</p> <ul style="list-style-type: none"> • A traditional for-profit company • An NGO, non for profit • Another social enterprise • I have no competitors • I do not know <p>Please indicate how many times has your social enterprise receive funding from the following sources in the last 3 years since founding:</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%; text-align: center; border-bottom: 1px solid black;">Year 1</th> <th style="width: 20%; text-align: center; border-bottom: 1px solid black;">Year 2</th> <th style="width: 30%; text-align: center; border-bottom: 1px solid black;">Year 3</th> </tr> </thead> <tbody> <tr> <td>Venture capital</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Impact investment</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Seed funding</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Year 1	Year 2	Year 3	Venture capital				Impact investment				Seed funding			
	Year 1	Year 2	Year 3															
Venture capital																		
Impact investment																		
Seed funding																		

APPENDIX B
Calibration Table

Case ID	Maturity	Strategic value	Future value	Operational value	Civic society	Government	Investor	Market	Certification	SIM formalization	SIM dichotomous	SIM extremes
1	0.82	0.501	0	0.89	0.01	0	0.05	1	1	1	1	1
4	0.05	0.18	0.95	0.99	0.99	0.99	0.05	1	0	0.501	1	0.25
5	0.82	0.18	0.05	0.01	0.501	0.14	0.501	1	0	0	0	0
6	0.95	0.27	0.95	0.61	0.87	0.08	0.05	0	0	0.501	1	0.25
8	0.95	0.02	0.95	0.78	0.95	0	0.05	1	1	0.501	1	0.25
10	0.05	0.501	0.501	0.78	0.23	0.65	0.05	1	0	0.501	1	0.25
24	0.05	0.86	0.95	0.99	0.84	0.77	0.95	1	0	0.75	1	0.75
28	0.05	0.97	0.95	0.89	0.87	0.14	0.05	0	0	0.501	1	0.25
29	0.501	0.86	0.95	0.78	0.9	0.05	0.05	1	0	0.75	1	0.75
31	1	0.99	0.95	0.99	0.99	0.99	1	0	1	0.75	1	0.75
32	0.05	0.12	0.501	0.01	0.14	0.35	0.95	1	0	0	0	0
36	0.95	0.95	0.95	0.98	0.06	0	0.05	0	0	0.501	1	0.25
37	0.501	0.08	0.05	0.01	0.06	0.14	0.05	0	1	0	0	0
39	0.501	0.27	0.501	0.95	0.04	0.92	0.05	1	0	0.501	1	0.25
41	1	0.99	0.95	0.78	0.99	0.99	0.05	0	1	0.501	1	0.25
42	0.501	0.97	0.95	0.01	0.57	0.77	1	0	0	0	0	0
43	0.95	0.38	0.95	0.78	0.87	0.97	0.05	0	0	0.501	1	0.25
50	0.18	0.99	0.95	0.27	0.63	0	0.05	0	0	0.75	1	0.75
51	1	0.99	0.95	0.99	0.99	0.95	0.05	0	0	0.501	1	0.25
52	0.05	0.86	0.95	0.01	0.501	0.95	0.95	0	0	0	0	0
56	0.05	0.05	0.501	0.95	0.75	0.92	0.05	0	1	0.501	1	0.25
57	0.95	0.65	0.501	0.01	0.75	0.35	0.05	1	0	0	0	0
58	0.05	0.77	0.95	0.78	0.97	0.92	1	0	0	0.75	1	0.75
59	1	0.01	0.501	0.01	0.01	0.77	0.05	0	0	0	0	0
61	0.05	0.95	0.95	0.78	0.29	0.35	0.05	0	0	0.501	1	0.25
66	0.01	0.77	0.95	0.61	0.11	0.03	0.05	1	1	1	1	1
69	0.95	0.01	0.05	0.95	0.01	0	0.05	1	1	1	1	1
70	0.18	0.08	0.95	0.01	0.23	0.05	0.501	0	0	0	0	0
71	0.05	0.77	0.95	0.01	0.14	0.01	0.95	0	0	0	0	0
75	0.501	0.86	0.95	0.98	0.92	0.14	0.05	0	0	0.501	1	0.25
80	0.05	0.02	0.501	0.89	0.87	0.99	0.05	0	0	0.75	1	0.75
83	0.501	0.501	0.95	0.05	0.35	0.86	0.05	0	1	0.501	1	0.25
88	0.501	0.97	0.501	0.01	0.23	0.01	0.05	1	1	0	0	0
89	0.18	0.92	0.501	0.78	0.92	0.65	0.95	1	0	0.501	1	0.25

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90	0.05	0.95	0.95	0.95	0.02	0.08	0.05	0	0	0.501	1	0.25
92	0.99	0.95	0.95	0.61	0.94	0.86	0.05	0	0	0.501	1	0.25
94	0.501	0.08	0.501	0.01	0.01	0.08	1	0	0	0	0	0
97	0.82	0.27	0.95	0.89	0.75	0.35	0.05	1	0	0.75	1	0.75
98	0.501	0.01	0.95	0.78	0.87	0.99	0.501	0	1	0.501	1	0.25
99	0.99	0.86	0.05	0.01	0	0	1	1	0	0	0	0
101	0.05	0.99	0.95	1	0.9	0.99	1	0	0	0.75	1	0.75
103	0.05	0.18	0.501	0.01	0.95	0.86	0.95	0	0	0	0	0
104	0.501	0.95	0.95	0.01	0.97	0.97	0.05	0	0	0	0	0.25
106	0.501	0.99	0.95	0.98	0.97	0.77	0.05	1	1	0.501	1	0.25
107	0.82	0.86	0.95	0.61	0.23	0.65	0.05	1	0	0.501	1	0.25
109	0.99	0.12	0.05	0.61	0.11	0.14	0.05	1	0	0.501	1	1
111	0.05	0.65	0.501	0.78	0.84	0.99	0.95	0	0	1	1	0
112	0.501	0.08	0.05	0.01	0.29	0.14	0.05	0	1	0	0	0
114	0.18	0.18	0.05	0.01	0	0	0.95	0	0	0	0	0
117	0.05	0.99	0.95	0.01	0.99	0.99	0.95	0	0	0	0	0
125	0.05	0.86	0.95	0.01	0.75	0.65	0.501	0	0	0	0	0
127	0.18	0.02	0.05	0.01	0.01	0.99	0.501	0	0	0	0	1
134	1	0.95	0.95	0.99	0.63	0.92	0.05	0	0	1	1	0.75
138	0.501	0.12	0.95	0.05	0.63	0.92	0.95	0	1	0.75	1	0.25
143	0.05	0.97	0.95	0.05	0.84	0.95	0.05	0	0	0.501	1	0.75
146	0.18	0.05	0.95	0.95	0.75	0.95	0.05	0	0	0.75	1	1
150	0.05	0.38	0.95	0.78	0.01	0.01	0.501	1	0	1	1	1
151	0.95	0.02	0.95	0.99	0.23	0.35	0.05	1	1	1	1	0.75
154	0.95	0.92	0.95	0.78	0.8	0.501	0.95	0	1	0.75	1	0.75
157	0.18	0.08	0	0.27	0.29	0.65	0.501	0	0	0.75	1	0
158	0.05	0.38	0.95	0.01	0.87	0.65	0.05	0	0	0	0	0
159	0.18	0.86	0.95	0.01	0.23	0.99	0.05	1	0	0	0	0
160	0.05	0.27	0.95	0.01	0.84	0.08	0.501	1	1	0	0	0.25
161	0.99	0	0.95	0.27	0	0.05	0.05	0	0	0.501	1	1
165	0.05	0.501	0.95	0.98	0	0	1	1	0	1	1	0
166	0.05	0.77	0.95	0.01	0.23	0.77	0.05	0	0	0	0	0
170	0.501	0	0.95	0.89	0.98	0.99	0.05	0	0	0	0	0
172	0.99	0.92	0.95	0.01	0.57	0.99	0.05	1	0	0	0	0.25
174	0.18	0.92	0.95	0.78	0.69	0.99	0.05	0	0	0.501	1	0
175	0.05	0.95	0.95	0.01	0.57	0	0.05	0	0	0	0	0.75
176	0.501	0.65	0.05	0.78	0.57	0.65	0.05	0	0	0.75	1	0.75
179	0.82	0.501	0.95	0.95	0.87	0.35	0.05	1	0	0.75	1	0
180	0.18	0.65	0.05	0.01	0.04	0.99	0.05	0	0	0	0	0
184	0.05	0.27	0.501	0.01	0.95	0.95	0.05	0	0	0	0	0

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3	185	0.18	0.03	0.501	0.01	0.08	0.05	0.05	0	0	0	0	0.25
4	186	0.82	0.97	0.501	0.89	0.29	0.501	0.05	1	1	0.501	1	0
5	189	0.82	0.01	0	0.01	0.05	0.99	0.05	1	0	0	0	0.75
6	196	0.501	0.97	0.95	0.78	0.8	0.86	0.95	0	1	0.75	1	0.75
7	199	0.99	0.65	0.95	0.27	0.57	0.65	0.05	0	1	0.75	1	0
8	200	0.18	0.05	0.05	0.01	0.63	0.35	0.05	1	0	0	0	0.75
9	201	1	0.18	0.501	0.27	0.05	0.01	0.501	1	0	0.75	1	0.75
10	205	0.95	0.38	0.95	0.95	0.23	0.01	0.05	0	0	0.75	1	0
11	206	0.05	0	0	0.01	0.23	0.99	1	0	0	0	0	0
12	207	0.05	0.86	0.95	0.01	0.84	0.95	1	0	0	0	0	0.75
13	209	0.05	0.99	0.95	0.98	0.92	0.99	0.05	0	0	0.75	1	0.75
14	210	0.01	0.77	0.95	0.99	0.501	0.05	0.05	0	0	0.75	1	0.75
15	212	0.18	0.99	0.95	0.89	0.96	0.99	0.05	0	0	0.75	1	0
16	213	0.05	0.38	0.95	0.01	0.87	0.35	0.05	1	0	0	0	0.75
17	214	0.82	0.27	0.95	0.61	0.63	0.35	0.05	1	0	0.75	1	0.75
18	215	0.05	0.27	0.501	0.99	0.04	0	0.501	1	0	0.75	1	0.75
19	220	0.501	0.501	0.95	0.98	0.87	0.35	0.501	1	0	0.75	1	0.25
20	221	0.05	0.18	0.95	0.61	0.35	0.08	0.05	1	0	0.501	1	0.75
21	226	0.05	0.86	0.95	0.05	0	0	0.05	1	0	0.75	1	1
22	228	1	0.92	0.95	0.98	0.69	0.65	1	1	0	1	1	0
23	232	1	0.501	0.501	0.95	0.96	0.95	0.501	1	0	0	0	0.25
24	233	0.95	0.86	0.95	0.05	0	0	0.95	0	0	0.501	1	0.75
25	236	0.01	0.92	0.95	0.78	0.43	0.35	0.501	1	0	0.75	1	0
26	239	0.99	0.95	0.05	0.01	0.14	0.501	0.501	1	0	0	0	0.75
27	240	0.05	0.05	0.501	0.95	0.18	0.01	0.05	0	0	0.75	1	0
28	242	0.05	0.05	0.95	0.01	0.99	0.99	0.95	1	0	0	0	0
29	243	0.501	0	0	0.01	0.97	0.95	0.05	0	0	0	0	0
30	244	0.501	0.03	0.95	0.01	0	0	0.05	0	0	0	0	1
31	245	0.99	0.27	0.05	0.89	0.03	0.05	0.05	0	1	1	1	0
32	246	0.95	0.77	0.501	0.01	0.9	0.86	0.501	0	0	0	0	0
33	249	0.18	0.12	0.95	0.01	0.95	0.65	0.05	0	0	0	0	0.25
34	250	0.05	0.86	0.95	0.27	0.14	0.14	0.05	0	0	0.501	1	0
35	251	0.05	0.27	0.95	0.01	0.69	0.97	0.05	1	0	0	0	0.25
36	255	1	0.86	0.95	0.89	0.96	0.86	0.05	0	0	0.501	1	0.25
37	256	0.95	0.05	0.95	0.61	0	0	0.05	1	0	0.501	1	1
38	257	0.05	0.86	0.95	0.78	0.98	0.23	0.05	0	0	1	1	0
39	260	0.05	0.03	0.05	0.01	0.96	0.99	1	0	0	0	0	0.75
40	263	0.05	0.77	0.95	0.61	0.63	0.99	0.05	0	0	0.75	1	0
41	264	0.82	0.12	0.05	0.01	0.18	0.05	0.05	0	0	0	0	0.75
42	265	0.05	0	0.95	1	0.18	0.08	0.05	0	1	0.75	1	0
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269	0.82	0.92	0.95	0.01	0.84	0.14	0.05	0	1	0	0	0.75
270	0.18	0.77	0.95	0.27	0.75	0.35	0.05	1	0	0.75	1	0
272	0.05	0.501	0.501	0.01	0.06	0.05	0.05	1	0	0	0	0
273	0.95	0.86	0.95	0.01	0.69	0.77	0.501	0	0	0	0	0
275	0.501	0.501	0.05	0.01	0.08	0.65	1	1	1	0	0	1
276	0.05	0.95	0.95	0.78	0.63	0.01	0.05	0	1	1	1	0.25
277	0.82	0.77	0.501	0.98	0.96	0.501	0.05	0	0	0.501	1	0
278	0.05	0.02	0.501	0.01	0.43	0.95	0.501	1	0	0	0	0.75
283	0.95	0.77	0.95	0.61	0.35	0.86	0.05	0	1	0.75	1	1
284	1	0.99	0.95	0.61	0.98	0.95	1	0	0	1	1	0
287	0.05	0.86	0.95	0.01	0.23	0.01	0.05	0	0	0	0	1
288	0.18	0.92	0.95	0.95	0.03	0.08	0.05	1	0	1	1	0.25
289	0.05	0.86	0	0.78	0	0.77	0.501	0	0	0.501	1	0.25
292	0.05	0	0.95	0.05	0	0	0.501	0	0	0.501	1	1
293	1	0.99	0.95	1	0.92	0.92	0.501	1	1	1	1	0
297	0.05	0.77	0.501	0.01	0.35	0.99	0.501	1	0	0	0	0
302	0.82	0.77	0	0.01	0.03	0.35	0.05	0	0	0	0	0.75
303	0.01	0	0	0.27	0.69	0.95	0.05	0	0	0.75	1	0.25
304	0.18	0.99	0.95	0.78	0.99	0.97	1	0	0	0.501	1	0.75
305	1	0.501	0.05	0.95	0.94	0.95	1	1	0	0.75	1	0
306	0.05	0.77	0.501	0.01	0.06	0.08	0.05	0	0	0	0	0
309	0.501	0.03	0.05	0.01	0.99	0.99	0.05	0	1	0	0	0.75
310	0.99	0.77	0.95	0.78	0.94	0.95	0.05	0	0	0.75	1	0
312	0.05	0.95	0.95	0.01	0.95	0.99	0.05	1	0	0	0	0.75
313	0.95	0.27	0.95	0.78	0.01	0.99	0.95	0	0	0.75	1	0
314	0.05	0.97	0	0.01	0.69	0.08	0.05	0	0	0	0	0.25
318	0.01	0.95	0.95	0.01	0.99	0.99	0.05	0	0	0.501	1	0
319	0.501	0.38	0	0.01	0.29	0.14	0.501	1	0	0	0	0.75
322	0.99	0.38	0.95	0.05	0.87	0.99	0.05	0	0	0.75	1	0
324	0.05	0.01	0	0.01	0.03	0.05	0.501	0	0	0	0	0.25
326	0.05	0.18	0.501	0.89	0.43	0.86	0.501	1	0	0.501	1	0.75
327	0.18	0.77	0.95	0.27	0	0	0.95	1	0	0.75	1	0.75
329	0.501	0.27	0.95	0.99	0.01	0.35	0.05	0	0	0.75	1	0.75
330	1	0.38	0.95	0.89	0.01	0.35	0.05	0	0	0.75	1	0.75
331	1	0.77	0.95	0.98	0.69	0.65	0.05	0	0	0.75	1	0.25
338	0.05	0.92	0.95	0.99	0.35	0.35	0.501	1	0	0.501	1	0.25
339	0.501	0.65	0.05	0.89	0	0	0.501	1	0	0.501	1	0.75
340	0.05	0.97	0.501	0.89	0.35	0.01	0.05	1	1	0.75	1	0

APPENDIX C
Truth table

	Strategic value	Future value	Operational value	Civic society	Government	Market	Cases	Outcome	Consist.
1	1	1	1	1	0	1	3	1	0.962642
2	1	1	1	0	0	1	6	1	0.957929
3	1	1	1	0	1	0	1	1	0.953411
4	0	1	1	0	1	1	2	1	0.949773
5	0	1	1	0	1	0	1	1	0.942639
6	0	1	1	0	0	1	5	1	0.939918
7	0	1	1	0	0	0	5	1	0.938105
8	1	1	1	0	1	1	3	1	0.936981
9	0	0	1	0	0	1	2	1	0.933624
10	1	0	1	1	1	0	1	1	0.918593
11	1	0	1	0	0	1	2	1	0.918088
12	0	1	1	1	0	1	3	1	0.911806
13	0	0	1	0	0	0	1	1	0.911036
14	0	1	1	1	0	0	1	1	0.903991
15	1	1	1	1	1	1	6	1	0.879729
16	1	1	1	1	0	0	5	1	0.878099
17	1	1	1	1	1	0	20	1	0.847226
18	1	0	1	0	1	0	1	1	0.836901
19	1	1	1	0	0	0	3	1	0.827369
20	0	1	1	1	1	1	1	1	0.803148
21	0	1	1	1	1	0	6	1	0.801317
22	1	0	1	1	1	1	1	0	0.797293
23	1	1	0	0	0	1	4	0	0.69342
24	0	1	0	0	0	1	2	0	0.674358
25	1	1	0	1	0	1	2	0	0.624632
26	0	1	0	0	1	0	1	0	0.616323
27	1	1	0	0	1	0	2	0	0.568919
28	0	1	0	1	1	0	6	0	0.546143
29	0	1	0	1	0	1	2	0	0.532389
30	1	1	0	1	0	0	3	0	0.489519
31	1	0	0	0	1	0	1	0	0.486725
32	1	1	0	1	1	0	11	0	0.471718
33	1	0	0	1	0	0	1	0	0.455919
34	1	1	0	0	0	0	5	0	0.444012
35	1	1	0	0	1	1	2	0	0.439686
36	0	1	0	0	1	1	1	0	0.436094

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3	0	0	0	0	0	1	1	0	0.420142
4	0	0	0	0	1	0	3	0	0.418884
5	1	0	0	0	0	0	1	0	0.413336
6	1	1	0	1	1	1	2	0	0.391667
7	0	1	0	0	0	0	6	0	0.370839
8	0	0	0	1	0	1	2	0	0.363062
9	0	0	0	1	1	0	4	0	0.350143
10	1	0	0	0	0	1	1	0	0.348933
11	1	0	0	0	1	1	2	0	0.338261
12	0	1	0	1	1	1	2	0	0.327434
13	0	0	0	0	0	0	5	0	0.254384
14	0	0	0	0	1	1	1	0	0.24864
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APPENDIX D
Theoretical grounding for configural antecedents

Table E1. Antecedents of SIM: Illustrative literature

Table with 11 columns: Paper, Focus, Maturity, Strategic value, Future value, Operational value, Government pressure, Investors pressure, Market pressure, Civic society pressure, Certification. Rows include literature such as Amel-Zadeh & Serafeim (2018), Arvidson & Lyon (2014), Beer & Micheli (2017, 2018), Benjamin (2013), Benjamin & Campbell (2015), Cheng et al. (2014), Costa & Pesci (2016), and Déjean et al. (2004).

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3	Dubey et al.	Investigates how institutional pressures motivate organizations to				X	X
4	2017	shape performance measurement systems for sustainability					
5		benchmarking.					
6	Ebrahim et al.	Examines the challenges of governance facing organizations that	X				
7	2014	pursue a social mission through the use of market mechanisms.					
8	Ebrahim &	It proposes a performance assessment framework for					X
9	Rangan, 2014	organizations with social missions that are under growing					
10		pressure to demonstrate their impacts on pressing societal					
11		problems.					
12	Edmiston &	Examines the effect of private social investment on outcome-		X		X	X
13	Nicholls, 2017	based commissioning and whether alternative forms of					
14		performance measurement and management lead to innovation in					
15		service delivery; improved social outcomes; future cost savings;					
16		and additionality.					
17	Gamble et al.	Examines and models the underlying continuum of business	X				X
18	2020	model integration (revenue model with social and environmental					
19		missions) in hybrid organizations. It shows a non-congruence					
20		with Certified B Corporation's audit results.					
21	Gibbon & Dey,	Discusses how social accounting and audit change as social	X				
22	2011	organizations scale-up, which leads them to quantify and express					
23		social value creation, make comparative assessments of social					
24		value and use financial proxies.					
25	Grewal et al.	Examines the reaction to nonfinancial performance and	X				X
26	2019	disclosure.					
27	Grieco et al.	Explains how the assessment of social impact plays a strategic	X	X			
28	2015	role in helping social organizations understand to what extent					
29		their social mission has been accomplished.					
30	Grimes, 2010	Looks at funding relationships within the social sector and					X
31		explains how organizations within the social sector employ					
32		performance measurement not just as a means of accountability,					
33		but also as a tool for making sense of social entrepreneurship as					
34		an organizational identity.					
35	Hall et al. 2015	Examines changes underpinning managers' prioritization of					X
36		stakeholders and focus on how managers' attention to salient					
37		stakeholders influences the development of Social Return on					
38		Investment (SROI)					
39	Ioannou &	Explores the impact of sustainability ratings on sell-side analysts'					X
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Serafeim, 2015	assessments of firms' future financial performance.							
Kroeger & Weber 2014	Explores appropriate methodologies to quantify and compare social value creation.						X	
Lall, S. 2019	Examines how social enterprises interact with social finance organizations in the context of impact measurement. Shows how social enterprises embrace impact measurement as a tool for organizational learning, and social finance organizations develop more empowering approaches for impact measurement.	X						X
LeRoux & Wright, 2010	Explores increased pressures faced by nonprofits for accountability and performance, both from their funding entities as well as the public. Focuses on the extent to which reliance on various performance measures improves strategic decision making within nonprofit organizations.			X				X
Maas & Liket 2011	Analyzes and categorizes contemporary social impact measurement methods, which have been developed in response to the changing needs for management information resulting from increased interest of corporations in socially responsible activities.				X		X	X X
Molecke & Pinkse, 2017	Investigates how social entrepreneurs handle the increasing pressure to measure social impact with formal methodologies.						X	X X X X
Moroz & Gamble, 2020	Examines the varying journeys and certification motivations of B Corps, in relation to their business models.	X			X			X X
Moroz et al. 2018	Examines the lifecycle of Certified B Corporations and its relation to the entrepreneurial journey.			X	X			X
Muñoz et al. 2018	Looks at how B Corp certified organizations influences the formalization of organizational purpose in new sustainable ventures.				X			X
Muñoz Kimmitt, 2019	Explains how policy agents and investors can better assess and prioritize social issues and target groups and subsequently guiding policy decisions regarding investment allocation on social economy enterprises; and how such processes impact formalization and accountability decisions in new social ventures.						X	X
Ormiston & Seymour 2011	Explores the significance of aligning mission, objectives and strategy with impact measurement in social entrepreneurship.			X				
Parker et al. 2019	Investigates impact of B Lab certification on the short-term growth rates of certifying firms.			X	X			X

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3	Rawhouser et	Develops a typology of four approaches to conceptualizing social	X	X	
4	al. 2019	impact, in relation to outcomes and activities.			
5	Thomson,	Explains why funders' outcome reporting mandates affect the			X
6	2010	extent of outcome measurement among nonprofits.			
7	Wilburn &	Discusses the role of B Lab and B Corps in providing the models	X	X	
8	Wilburn, 2013	necessary for a shift to a focus on the double bottom line: profit			X
9		and social benefit. It focuses on the role of their performance			
10		assessment program, ratings agency and analytics platform.			
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