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IMPACT MEASUREMENT IN A NASCENT 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 nascent 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 nascent settings play a peripheral role at best. By offering a multi-level explanation of what matters and when for SIM in a nascent 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; nascent 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 mature or more established social sectors where accountability is paramount and institutional funders and governments actively encourage its use to allocate limited resources in the most efficient and effective way (Nicholls, 2010).

While relevant, social impact measurement 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 pressures from stakeholders to measure social impact using formal measurement instruments (see e.g. Hall, Millo & Barman, 2015; Molecke & Pinkse, 2017).

This might not necessarily be the case within nascent social sectors where SIM is at the earlier stages of usage, which makes our already poor understanding of the phenomenon even more problematic. Nascent sectors “are characterized by ambiguity and uncertainty that permeates everything from the viability and performance of critical technologies to customers’ needs, the competitive landscape, products’ meaning, and conceptions of value” (Zuzul & Tripsas, 2019:2). Thus, in nascent social sectors we expect to find a lack of formal rules, institutional structures, isomorphic pressures, formal governance and accountability mechanisms for capturing and communicating social impacts.

In these nascent contexts it is specifically thought-provoking to understand why some social ventures engage with SIM anyways. Existing theories have not offered explanations as to why and how social enterprises voluntarily choose to engage in and formalize SIM in contexts where the expectations for SIM are fuzzy and its benefits for social enterprises are not immediately evident. Therefore, in this study we seek to understand *what catalyzes social ventures in nascent social sectors to engage in increasingly robust impact measurement activities? and what SIM approaches emerge as a result?*

In the absence of a theoretical apparatus, we draw from institutional and organization-level theories to conjuncturally assess the organization’s ability to formalize SIM and the perceived value of doing so alongside isomorphic processes and institutional pressures. This is in line with Barman and MacIndoe’s (2012) approach in dealing with the complexity of outcome measurement. Our study focuses on the nascent social sector in Chile (Muñoz, Kimmitt & Dimov, 2019), where we surveyed 152 social entrepreneurs. Using configurational comparative

methods, we analyzed combinations of nine internal and external factors that might enable SIM formalization. Subsequently, we followed up with 12 one-on-one interviews to enrich our findings. Our configurational analyses reveal a number of counterintuitive aspects of SIM and allow us to identify four novel approaches to SIM, which we label: *forward-looking & outcome-driven*; *inward-looking & process-driven*; *outward-looking & market-driven*; *outward-looking & public-driven*. We discover that in nascent social sectors, not only can SIM take many forms, but it also emerges in the absence of factors assumed central within more established social sectors (i.e. certifications, business maturity and investors pressure).

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

BACKGROUND LITERATURE

Social impact measurement

Social impact measurement (SIM) is the processes of capturing and communicating valued information about the effects of social interventions, whether and how a change in condition has occurred (Kroeger & 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, Patterson, Kelly & Mair, 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 programming 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

(retrospective, current, or prospective), perspectives (micro, meso or macro), and ambitions (to screen, monitor, and/or report). Today, there are databases that host large collections of tools and indicators: Social Value International, IRIS+ and Global Value Exchange, among others.

On the other hand, academic uptake of SIM has moved at a slower pace. Even though Dees (2007) and subsequently Ebrahim and Rangan (2010) highlight the importance of impact measurement in the social enterprise ecosystem, SIM scholarship continues to lack of empirical and theoretical studies that develop the field. For their part scholars have opted to use practitioner-based works to offer normative suggestions (Ebrahim & Rangan, 2014). Even though many studies highlight the range of benefits associated with SIM (e.g. Colby, Stone & Carttar, 2004; Poole, Davis, Reisman & Nelson, 2001), we know very little about how SIM is governed in the absence of formalized arrangements and isomorphic pressures. In other words, there is a dearth information about contextual SIM drivers and approaches in countries or regions around the world that do not ask for SIM, many of which are in nascent social sectors.

Formalization of social impact measurement: configural antecedents

Understanding how SIM formalization occurs in nascent social sectors requires the identification of a range of relevant conditions or ‘theoretical units’ for it. To do so, we draw on Barman and MacIndoe’s (2012) a multi-level approach, used to explain why organizations engage in outcome measurement activities. In the absence of one coherent theoretical apparatus, the authors pay attention to a range institutional and organization-level theories. They argue that neither the isomorphic pressures delineated by new institutional theory nor organizational structural and strategic characteristics can fully explain the “uneven spread of outcome measurement across the field”.

Prior studies have identified a number of institutional antecedents, which exert pressure on organizations for the development and use of SIM. Hall et al. (2015) show how SIM matters when it comes to prioritizing stakeholders. It also enables social ventures to successfully negotiate with funders by describing the social identity of the enterprise to constituents (Grimes, 2010). Developing SIM mechanisms is central to stakeholders because investors struggle to understand their investments (Déjean, Gond & Leca, 2004). It sets the stage for funder trust (Thomson, 2010) and helps to meet external accountability expectations (Molecke & Pinkse, 2017). Indeed, without SIM governance the current levels of funding for social programs would not have risen to existing levels (Ioannou & Serafeim, 2015). The latter involves both government and philanthropic programs. SIM can be also explained by the need for legitimizing social actions (Nicholls, 2010) facing a range of stakeholders including consumers, who can discriminate between the social value delivered by a range of competitors.

Similarly, research has identified a number of organizational antecedents with respect to SIM. SIM is increasingly being considered as an integral component of the governance of social organizations (Mair, Mayer & Lutz, 2015). Its formalization can be explained by the number of benefits it presumably delivers. SIM can be driven by perceived operational and future benefits (Beer & Micheli 2018). It enables learning and strategizing, as it improves the effectiveness of strategic decision making (LeRoux & Wright, 2010) and the internal understanding of social value (Kroeger & Weber, 2014). It reinforces organizational identity (Grimes, 2010), social actions and accountability principles (Benjamin, 2013; Ebrahim, Battilana & Mair, 2014). Also, it strengthens the legitimacy of the social mission internal legitimacy, reinforcing employee behaviors (Beer & Micheli, 2017). SIM helps front-line employees by motivating conversations about financial and non-financial progress as well as strategic progression (Benjamin &

Campbell, 2015), becoming a critical mechanism to encourage connections between social and financial performance at the organizational level (Battilana, Sengul, Pache & Model, 2015; Beer & Micheli, 2017).

These factors account for varying institutional and organizational antecedents for why firms would adopt and implement SIM (Arvidson, Lyon, McKay, & Moro, 2013; Barman & MacIndoe, 2013; Benjamin & Campbell, 2015) and can potentially explain how SIM assists organizations in the achievement of their goals (Gibbon & Dey, 2011; Ryan & Lyne, 2008).

RESEARCH CONTEXT, METHODS AND DATA

A nascent social sector

In exploring our question, we turned our attention to a research setting that exhibited such conditions. We focus on the emergent social sector in Chile. Latin-America has only recently allowed the formalization of “for-benefit enterprises”, led by Argentina and Colombia. Despite having a very active social sector (Muñoz et al., 2019), Chile (at the time of this writing) has not agreed on relevant legislative and regulative arrangements to support its social enterprises and social entrepreneurs. The first, and only so far, government support program for social ventures including impact measurement was only launched in August 2018 (Corfo, 2018), which only supports six incubators and 40 social entrepreneurs. Chile has yet to define an appropriate legal framework and regulation and the prevailing normative and cognitive rules are still subject to interpretative flexibility (Muñoz et al., 2019). In the formative years of a nascent sector, established customers, technologies, business models, and paths to success are elusive and rapidly changing (Zuzul & Tripsas, 2019). In this sense, the Chilean social sector has developed its own and unique ways of tackling social problems and the numerous challenges involved in

the process of creating, delivering and most importantly measuring social impact (Muñoz, Kimmitt, Serey & Velásquez, 2016). The “continuous morphing” and “purposeful experimentation” (Zuzul & Tripsas, 2019) within the Chilean social sector offers a unique context in which to understand the antecedents of SIM.

Configurational approach

This complex scenario calls for a particular methodological approach, capable of addressing causal complexity. In understanding the conjunctural relationship between internal and external factors and impact measurement, we use configurational comparative methods, in its fuzzy-set variant - fsQCA (Ragin, 2008). FsQCA is a set-theoretic method to observe and analyze complex causal relationships involving outcomes resulting from many possible potential drivers. It enables making causal inferences based on the notions of causal sufficiency and causal necessity and is particularly well-suited for addressing research questions dealing with complex causal relationships (Misangyi et al., 2017).

Sample and data collection

We use a proprietary dataset of 340 social entrepreneurs from Chile, which was collected in 2016 as part of large-scale study of the Chilean nascent social sector. It offers an in-depth view 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. To delineate an area of homogeneity whilst retaining high variance within the group, we refined the full sample in line with three criteria. First, to capture SIM governance we focused on those respondents with active involvement in the management of the enterprise. Second, given their unique forms of

organizational governance we discarded cooperatives, collective and communal organizations. Third, to observe SIM in action we selected only those ventures which has been trading for at least one and less than 10 years. A final subsample of 152 social enterprises was considered for this study.

We also conducted several follow-up interviews in early 2017 with a subsample of 12 exemplar social enterprises, which at that time were formalizing their impact measurement practices. The qualitative data obtained from the interviews were not used as a direct input for the configurational analysis, rather as a way of understanding the reality behind each type, which is central to the development of our explanations and approaches. Thus, this is a post-hoc analysis of the transcripts guided explicitly by our results, where we centered our examination on how the distinct configurations lead to formalization of SIM.

Measures and calibration

In this section, we introduce the set of measures used in this study, along the rationale and thresholds for calibration required in fsQCA studies. In configurational research calibration is essential as it enables systematic comparison, ensuring that the different measures conform to dependably known standards. Using theoretical knowledge and distribution of raw scores, the research team specifies the score that would qualify a case for full membership in the sets of social enterprises with formalized impact measurement practices, as well as in the set of each of the causal conditions. Also, the score that would completely exclude the cases from each of the sets. It does so by using an estimation technique, automated in QCA 3.0 (Ragin & Davey, 2016) that transforms raw scores into set measures (Ragin, 2007), rescaling the original measure into

scores ranging from 0.0 to 1.0. In the following we present our measures for both outcome and causal conditions, providing also calibration rationale and thresholds for each of them¹.

Outcome condition: measurement and calibration

While established measures for social impact remain scarce (Saebu et al., 2018), there are many alternative methods to understand social and environmental impact (Ebrahim & Rangan, 2014), from less-formalized ad-hoc tools to more-formalized international standards (e.g. IRIS catalogue, B Impact Assessment, Social Return Over Investment, Outcomes Star). We observe SIM formalization by looking at the degree of specialization and standardization of the SIM practices reflecting the level of maturity of the social enterprise and commitment to better understanding and communicating its overall performance facing stakeholders. We do this by looking at four distinct markers and absence of SIM as follows: 1) no SIM practices; 2) non-specialized and non-standardized SIM; 3) specialized and non-standardized SIM; 4) non-specialized and standardized SIM; and 5) specialized and standardized SIM. Table 1 provides a matrix of SIM formalization.

---Insert Table 1 about here---

The outcome measure thus captures the degree of specialization and standardization of the SIM practices reflecting the level of maturity of the social enterprise and commitment to better understanding and communicating its overall performance facing stakeholders. We scored each of these along a formalization scale ranging from 0-3, where 1=0, 2=1, 3=2, 4=2 and 5=3. Table 2 provides the structure and rationale guiding our coding procedure. For our outcome measure we use direct calibration, which is informed by degree of formalization as follows: 0 = 0.0 (full

¹ The calibration table is available for the review process in Appendix A.

out of the set of SIM formalization); 1 = 0.5 (cross-over point); 2 = 0.75; and 3 = 1.0 (full in the set of SIM formalization).

Causal conditions: measurement and calibration

In the same way the outcome condition varies across a formalization continuum, there are different motives behind the founders and stakeholders' preferences for particular levels of formalization. We therefore assess what triggers varying levels of formalization in terms of the type of impact measurement tool used by the social venture in nascent contexts. Given the range of possible drivers, we draw on Barman and MacIndoe's (2012) multi-level approach to outcome measurement implementation, comprising a range of theories on institutional pressures and organizational capacity. We looked at SIM literature through the lens of Barman and MacIndoe (2012) and derived a multi-level analytical framework comprising institutional and organizational antecedents, shown in Figure 1. With this framework we seek to link different underlying antecedents into a coherent whole.

---Insert Figure 1 about here---

Business maturity is captured by looking at the overall number of years the social enterprise has been in operation, formally or informally, exchanging goods or services and delivering social value to beneficiaries. Drawing on Hwang and Powell (2009), we argue that the more mature the social enterprise become, the more likely is to develop more sophisticated accountability and performance measurement mechanisms. We calibrate *business maturity* based on the observed distribution of scores and irrelevant variation. The average years of trading for our sample is 3 and the standard deviation is 2.4. As such, our calibration thresholds are 1 (full out), 3 (cross-over point) and >5 (full in). As per the principle of irrelevant variation (Ragin, 2007), any

enterprise with 5 years of trading or more is considered as part of the set of mature social enterprises. *Strategic value of SIM* focuses on the degree of utility of the business's social orientation, materialize in its social mission. It uses a 5-point Likert scale to assess how important is the social orientation across seven dimensions: competitive advantage, profitability, consumer decisions, employees, sales, suppliers and partnerships. Using the observed distribution of aggregate scores as anchors, we calibrated *Strategic value of SIM* using 22, 28 and 33 as thresholds for full exclusion, cross-over point and full inclusion in the set of enterprises with strong social orientation. *Future value of SIM* uses a 5-point Likert scale to capture the extent to which social entrepreneurs perceived SIM as inherent to future success of social enterprise. We observe a skewed distribution of raw scores which suggest an over-estimation of the role of SIM. To counterbalance this effect and using observed score distribution, we calibrated this measure using 3, 4 and 5 as calibration thresholds. *Operational value of SIM* captures the perceived value of SIM in the present. Using single selection (Y/N), it assesses the social entrepreneurs' perception regarding the direct contribution of SIM to the operation of the social enterprise and/or immediate outcomes, across nine items: internal validation, communication with stakeholders, access to investment, selling products, credibility, good management practice, part of the social enterprise's key responsibilities, continuous improvement and other daily practices. The average number of areas of impact is 3 and the standard deviation is 2.8. As such, our calibration thresholds are 1 (full exclusion), 2.5 (cross-over point) and >6 (full inclusion). Drawing on irrelevant variation, any enterprise considering 6 areas of impact or more is deemed as part of the set of cases with strong *operational value of SIM*

Civic society pressure captures the degree to which non-governmental stakeholders have influenced the achievement of the venture's objectives. We use a 5-point Likert scale that assesses the perceived importance of clients, donors, partners, suppliers and beneficiaries for social and commercial objectives. Using the observed distribution of aggregate scores as anchors (average 33.6; SD 10.3), we calibrated this measure using 24, 34 and 45 as thresholds for full exclusion, cross-over point and full inclusion in the set of enterprises perceiving a strong *Civic society pressure*. Likewise, *government pressure* uses a 5-point Likert scale to capture the degree to which local (e.g. municipality) and central governments (e.g. development agency), as appropriate, have influenced the achievement of the venture's objectives, as perceived by the social entrepreneur. As with the latter, we use the observed distribution of aggregate scores as anchors (average 12.8; SD 5.8), we calibrated this measure using 8, 13, 18 as thresholds for full exclusion, cross-over point and full inclusion in the set of enterprises perceiving a strong influence from government actors. Our measure for *market pressure* seeks to capture the social enterprise's competitive environment by examining the nature of the social enterprise's main competitor, as per their legal form. We use dichotomous coding with (1) for for-profit competitors and (0) for competitors from the third sector organizations. This, under the assumption that traditional for-profit enterprises create a more competitive environment than non-for-profit, requiring the social enterprises to formalize managerial practices, particularly those related to social value creation, delivery and accountability (Dees, 2007; Ebrahim & Battilana, 2014). As with *certification*, we calibrated this measure with 1 for *market pressure* and 0 for *no market pressure*. Finally, our measure of *investors pressure* focuses on the amount of investment rounds received by the social enterprise during the first three years of operation. Drawing on Carman (2007), Christensen and Ebrahim (2006), and Benjamin (2013), who show

that measuring outcomes is oftentimes done in response to funders, we assessed investment rounds across three sources of external investment: venture capital, impact investment and seed funding. We selected these sources as they can exert pressure early in the process and shape the venture's accounting mechanisms. The average investment rounds received by enterprises for our sample is 0.7 and the standard deviation is 1.1. As such, our calibration thresholds are 2, 1 and 0 for full inclusion, cross-over point and full exclusion in the set of social enterprises potentially perceiving a strong influence from investors.

Our measure for *Certification* captures the presence/absence of standardized third-party certifications either these being process- or outcome-based. Since this is a dichotomous variable, we calibrated this measure with 1 for certification and 0 for no certification.

Table 2 presents descriptive and correlations for our set of calibrated causal and outcome conditions.

---Insert Table 2 about here---

Data analysis

Analysis of necessary conditions

The analysis of necessary conditions in fsQCA looks at which individual factors may be necessary or mostly necessary for the outcome to occur. It examines whether one of the configurational enablers is individually enough to produce the formalization of social impact measurement. In this analysis we test the subset relationships between the nine conditions and the SIM formalization. As seen in Table 3, the analysis evaluates the degree to which instances of an outcome agree in displaying the causal condition thought to be necessary (consistency) and the empirical relevance of each causal condition (coverage). A condition can be deemed necessary when it surpasses the 0.95 consistency threshold while exhibiting a relatively high

coverage ($\sim > 0.8$). Results of the necessity analysis are shown in the Table 3. Alongside revealing degrees of necessity, this analysis allowed us to retain the six causal conditions with higher consistency levels in each of the two areas (marked in grey shading) to be used in the subsequent configurational analysis. All necessary conditions selected are also empirically relevant, which means that the constraining effect of each necessary condition may be great. As explained by Marx and Dusa (2011), the use of six conditions in intermediate-Ns studies allows for balancing parsimony and explanatory richness.

---Insert Table 3 about here---

Sufficiency analysis

Once the measures calibrated, fsQCA 3.0 constructs a *truth table* listing all 64 (2^6) logically possible combinations of causal conditions along with the cases conforming to each combination². In line with the limited diversity of the empirical world, we did not find evidence for all 64 possible combinations. The truth table presents 48 combinations of conditions, with 78 cases exceeding the minimum acceptable frequency and consistency thresholds and 74 cases below the bar. In order to reduce the truth table to simplified combinations, we used a frequency threshold of one and a consistency threshold of 0.8. These two thresholds specify the minimum amount of cases to be considered in the analysis (frequency) and the minimum acceptable level to which a causal combination is reliably associated with the outcome (consistency). Based on the truth table analysis, fsQCA applies counterfactual analysis and logical minimization to reduce the 48 truth table rows to a set of simplified combinations of conditions, which constitute the main results shown in Solution Table 4 below.

² The truth table is available for the review process in Appendix B.

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 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 extremely 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. Our configurational analysis revealed

four SIM approaches (Table 4)³, which can be understood as unique recipes for SIM formalization in nascent social sectors. The overall solution is highly consistent (0.81) and empirically relevant with a 0.81 coverage (superior to the 0.65 standard), with individual solution terms exhibiting equally consistent results ranging from 0.8 to 0.94.

---Insert Table 4 about here---

Type 1 Forward-looking & outcome-driven SIM presents a 2-condition configuration, with the presence of prospective value and operational utility of SIM acting in conjunction and exhibiting a strong causal relationship with the outcome. It portrays SIM formalization as oriented toward building the future success of the business forged by the contribution it makes to the operation of the social enterprise and its immediate social outcomes. In forward-looking & outcome-driven social enterprises, SIM operates as a mechanism for understanding and communicating how improvements in current social and environmental impacts can contribute to the future success of the social venture.

Clothing-Venture is a social enterprise that collects and redistributes clothing using portable shops. It gives poor people access to good quality clothing and provides training around recycling and reusing discarded material, whilst diverting waste from landfills. Impact measurement is focused on managerial aspects of the social enterprise, using qualitative and quantitative information pertaining tons of clothing diverted from landfills and how families have been supported and benefited from their training initiatives. The benefits to the community are quantified and disaggregated based on service lines and target groups. They also use GIS to

³ The Solution Table (3) distinguishes core and peripheral conditions. This is based on how causal components are causally connected to a specific outcome. Core conditions are decisive causal ingredients that distinguish configurations, and peripheral conditions act as complementary ingredients that only make sense as contributing factors. In fsQCA, large black circles represent core conditions with small black circles being a reflection of peripheral conditions. Circles with an X are used to indicate the absence of condition. No circle indicates that the condition is irrelevant for explaining the outcome of interest.

georeferenced their beneficiaries. All of the above is managed using software-based social accounting and impact measurement. Despite their growing interest of local governments and potential corporate partners, they have remained reluctant to engage in formal partnerships. Desired impacts are difficult to achieve, since the founders observe there is still too much bureaucracy in local governments and a fundamental value misalignment with potential corporate partners. Here, SIM focuses on forging future business success, despite the potential constraints posed by external stakeholders. Given its focus on internal aspects – processes and practices – of the enterprise, little attention is given to stakeholder engagement and participation and the appreciation of the potential effects in communities' conditions are likely to be moderate yet knowing that social impact is likely to be tangled with future financial results.

Energy-Venture is a solar energy venture undergoing through a profound transformation, from selling and installing solar panels to helping residents of social housing to save money. While social impact has been part of *Energy-Venture* since the beginning, such transformation led the team to focus on sustainable architecture and eco-friendly housing for all, reorienting state funds and subsidies toward creating green community benefits. Impact measurement eco-friendly housing is linked primarily to savings in energy consumption. It is thus simple to communicate to all stakeholders enabling the venture to secure long-term contracts with the government. At the same time, it facilitates continuous improvement since the higher the energy savings the more value the business produces. This has led *Energy-Venture* to think about new services associated with social finance and impact-oriented loans to low income consumers. The central aim is to monetize energy savings for the business today and tomorrow. As illustrated by *Clothing-Venture* and *Energy-Venture*, *forward-looking & outcome-driven* social ventures are likely to maintain a narrow reporting scope, focused almost exclusively on those key factors that

enable future-oriented learning, such as internal processes, enterprise social outcomes and business performance. Such an approach leads to the use of informal communication and reporting tools targeting internal audiences and management as primary interest groups.

Type 2: Inward-looking & process-driven SIM presents a set of conditions marked by presence of *operational value of SIM* and absence of *civic society pressure* as core conditions. These are complemented by absence of *strategic value* and absence of *government pressure*, which play only a peripheral role. This SIM type shows social enterprises formalizing SIM in early stages as highly functional and part of an accelerated learning process, since they are not yet open to external influence from societal or government actors. Indeed, these are required in their absent form for SIM to get formalized. Here, *strategic value* is also absent reinforcing the central role of *operational value*, which reveals a strong focus on the improvement of current practices and immediate goals over future-oriented social missions.

Social impact measurement in *inward-looking & process-driven enterprises* works as a mechanism for understanding, learning and improving business processes and practices leading to social and environmental impacts. *Software-Venture* is a technology cooperative venture that offers ERP software to small businesses. Competition is not relevant to them since they do not seek to compete in the traditional ERP market space, operating as a social enterprise with prices ~30% below market average and with a strong focus on sustainability resource management. Since the idea of a socially-oriented cooperative selling a sustainability software to SMEs was a difficult sell to government agencies, *Software-Venture* decided to focus on the creation of new sustainability-related pieces of software and the development of new services aimed at expanding their customer base.

Software-Venture is also focused on expanding its collective impact, including a novel crowd radio and television service addressing inclusion issues across engineering students, seen as future customers. Impact measurement is primarily associated with software engineering, in terms of how much their technology products help socially-oriented SMEs achieve their social goals; and likewise, how many unsolved needs of social enterprises can be solved through their technology products. *Software-Venture*'s impact materializes through their customers' social impact, which also helps explain the absence of a strong *strategic value of SIM*. In addition, the latter condition is seen as embedded in the cooperative nature of the venture, which seems to render the *social mission* as redundant and reduce their attention to changes in beneficiaries' circumstances. Combined, the above illustrates the sole emphasis on the *operational value of SIM*, and why the other drivers are either absent or irrelevant for the formalization of SIM.

As such, *inward-looking & process-driven* enterprises are likely to promote a distant engagement with external stakeholders as well as exhibiting an infrequent participation thereof, which seem to be more prominent when it comes government actors. As such, scope of reporting is likely to be even narrower than the previous type with low levels of accountability, using informal communication channels to report on improvements around business processes and practices to internal audiences only. *Inclusion-Venture* is a consulting firm focused on fostering inclusion in the workplace particularly for vulnerable groups, such as people with disabilities or immigrants. As *Software-Venture*, their impact is channeled through their clients, yet *Inclusion-Venture*'s inward-orientation and attention to learning are amplified by their view of social innovation and the relationships they have established with funders.

Type 3: Outward-looking & market-driven SIM is similar to the previous one at the core, with the presence of operational value of SIM and absence of stakeholder pressure as central

conditions. However, these are complemented by presence of market pressure and absence of government pressure as drivers of formalization. At the time this type focuses on the immediate goals and the improvement of practices, it does so by leveraging social impact measurement in response to market demands. However, in order to respond adequately, these social enterprises require a low degree of influence from external actors (e.g. clients, donors, partners, suppliers, beneficiaries) and complete independence from government as they pursue social and commercial objectives. In this case, SIM functions as a mechanism for understanding, monitoring and communicating social and environmental impacts, with particular attention to the demands of market actors such as customer and competitors.

Like *Software-Venture*, *Recruitment-Venture* also offers software solutions to third sector organizations but focus on volunteer recruitment and management. Unlike with the previous type, *Recruitment-Venture* works with large NGOs which normally attract a larger pool of volunteers lacking sufficient financial resources to invest in new managerial solutions. SIM is then focused on the work they do with and for large NGOs, in terms of efficiency and coordination of volunteering work. Here, the size of the market segment seems to play a role in how and why SIM is formalized and utilized.

Attention to changes in markets requires a closer engagement with and more frequent participation of different stakeholders, where customers and investors are likely to engage and influence the operation, outcomes and intended impacts of the social enterprise. In this sense, it is expected a higher level of accountability, pertaining primarily how social and financial outcomes improve together. This requires a broader reporting scope than the previous types and a more formal and frequent communication to market actors about the social enterprise's practices, outputs and impacts. *Consumption-Venture* is a radical social enterprise, actively

promoting a new way of doing business and donating 100% of its profit to other NGOs. In order to enter quickly into the market and attract and interact with as many customers as possible, they decided to focus only on crowded (ideally low-income) market spaces, which also exhibit low entry barrier and equally low profit margins, such as toilet paper, water and powder milk. Competition in these markets tends to be strong demanding particular attention, which leads *Consumption-Venture* to overemphasize its main differentiator: social impact through the donation of 100% of its profit. Since donation is the key for *Consumption-Venture*, impact is measured through the amount of quarterly and aggregate contributions they make to other NGOs, which is directly related to the enterprise's operational efficiency and profit.

Type 4: Outward-looking & public-driven SIM portrays social enterprises highly oriented toward solving social problems, most likely in response to government demands or in collaboration with public sector actors. As with the other solution terms, the presence of operational value of SIM is also a core condition, but for serving the delivery of social goals rather than competitive improvements facing market pressures. This SIM type shows social enterprises highly committed to delivering on their social mission and formalizing SIM in line with requirements from public sector, either due to contractual obligations or as recipients of public funds. Uniquely for outward-looking & public-driven enterprises, SIM is enabled by the social enterprise's social mission. It works as a mechanism for understanding, monitoring and communicating the social mission and derived impacts, primarily in response to regulatory requirements.

Projects-Venture, for example, is an umbrella social enterprise that develops social projects supported by different government agencies. Social projects are incubated and spin-off when they reach their potential in terms of social outcomes and financial viability. Its portfolio

approach and funding sources reduce the importance of potential market competition. Here, SIM formalization emerges from experimenting and learning about the alternative ways in which social outcomes can be optimized. Most of *Projects-Venture*'s portfolio is connected to government support programs. This relationship goes beyond subsidies, grants and seed funding. *Projects-Venture* collaborates with local governments in both policy design and service delivery. Thus, the measurement system *Projects-Venture* utilizes, is heavily reliant on randomized control trials and is aligned with the way in which the government conducts the cost-benefit analysis of prospective social programs. An intensive measurement system, such as randomized control trials, involves high attention to changes in circumstances experienced by the enterprise's beneficiaries.

Outward-looking & public-driven enterprises show closer engagement and more frequent interactions with stakeholders, particularly with government actors. Here, both regulator and governmental agencies are likely to engage and influence the social enterprise's practices, outcomes and intended impacts. This requires extensive reporting and a more formal and frequent communication with the regulator about whether and how the intended impacts are being achieved, since it is likely that outcomes will trigger payments. In this sense, a high level of accountability is required and expected, yet only a moderate attention to the financial outcomes of the social enterprise's commercial operation. *Education-Venture* illustrates the latter. This social enterprise focuses on environmental education, targeting primarily council schools in rural areas and aligned with the national plan for communal development. Although the venture is still in its developing phase, *Education-venture* collects evidence from parents regarding whether children and their families are more or less aware of the environmental problems around them. The standardized tests used are linked to the local councils' community

development plans and sustainability strategies. Since these rural communities are highly dependent on sustainable tourism, local governments are open to directly fund external providers of environmental education.

In Table 5, we provide a summarized view of the four SIM approaches, providing a basic conceptualization, a synthesis of their main orientation, attention and reporting scope, along illustrative evidence from the interviews.

---Insert Table 5 about here---

Discovery #3: Counterintuitive patterns across types

Table 3 also reveals interesting patterns across types, pertaining the prominence and counterintuitive roles of some individual conditions. First, the *operational value* of SIM is prominent across solution terms and central to SIM formalization, being the only condition present across all solutions. Second, the *strategic value of SIM* traditionally derived from the venture's social mission appears as peripheral to SIM formalization at best. This is counterintuitive as the social mission is normally assumed as instrumental to forging prosocial decision-making in social enterprises. The absence of *civic society pressure* as a core condition is also counterintuitive (types 2 and 3), because this means that SIM formalization tends to prosper in the absence of external actors exerting influence on the social enterprise whilst in pursuit of social and economic objectives. Finally, given the lack of regulation and the absence of an appropriate legal form for social enterprises to operate and compete in their own categories, one would expect to find a wide-spread perception of weak or non-existent pressure from the *market and government actors*. However, we did find evidence of influence in types 3 and 4 respectively. Interestingly in types 3 and 4, the role played by *regulation* and *competition* in SIM

formalization seems to be mutually exclusive. This occurs when market competition is present and government influence is absent, and vice-versa. We suspect that this is due to the reality that social enterprises tend to prioritize one over the other as main source of income. For example, receiving grants or subsidies for social action appears to be in conflict with trading with final consumers. At least in the context of SIM formalization it seems that these two cannot co-exist as drivers. Yet, hybridity in social enterprises involves the combination of social and commercial missions, strategies and practices, which are assumed to exist in balance. Our findings illustrating mutual exclusivity in two of the four types, calling into question the notion of hybridity in social impact measurement.

Sensitivity and robustness tests. To confirm the stability and robustness of the results we conducted three sensitivity tests. We did so by readjusting the calibration and frequency thresholds, which allows us to test whether our results and inferences, particularly those relating to causal necessity and sufficiency, are robust to the use of alternative specifications. We also run a negate test to eliminate alternative explanations regarding possible causal relationships between conditions and absence of the outcome. The sensitivity tests show that the results are robust and remain stable to the use of alternative thresholds.

DISCUSSION

To date, the existing literature does not lend theoretical perspectives on how and why social entrepreneurs, in nascent social settings, voluntarily choose to engage in and develop SIM. This entails a spontaneous emergence in contexts where it is not required, no guidance is offered and there are no immediate benefits. This constitutes a fundamental problem in our knowledge of SIM. Arguably, everything we know about SIM formalization as antecedents and outcomes has

been explained by looking at institutionalized governance and accountability mechanisms. SIM formalization constitutes an important form of governance, since outcome measurement in social enterprises can significantly strengthen downward accountability (Benjamin, 2013), which in turn is central to demonstrating that social ventures are enabling social, environmental and economic outputs, outcomes and change. Yet, we simply do not know how the measurement of social value and governance mechanisms work for social ventures in nascent social sectors. To address this issue, we explored, identified, and explained the emergence of SIM approaches in a nascent social sector. We did so by mapping the responses of 152 social entrepreneurs in Chile and exploring alternative combinations of institutional and organizational factors that might enable SIM formalization. Our research reveals four approaches through which social enterprises design and implement SIM: *forward-looking & outcome-driven; inward-looking & process-driven; outward-looking & market-driven; outward-looking & public-driven*. These findings show, that in contexts with no structured governance or enforcement of SIM, it can emerge in a variety of ways. Not only can SIM take many forms in contexts with no structured governance or enforcement mechanisms, but it materializes in the absence of factors assumed central in more established social sectors, as is the case of certifications, maturity and pressure from investors and funders.

This paper contributes to literature by expanding our understanding of SIM (Wry & Haugh, 2018). We offer surprising yet consistent relationships that emerge by exploring a new context through a multi-level theoretical lens. The counterintuitive nature of our empirical discoveries seems central to the growing, yet still scarce, debate around governance and accountability in social venturing (Grimes, 2010; Molecke & Pinkse, 2017; Saebi et al. 2018; Rawhouser et al. 2019). We do so in a number of ways.

First, most of our collective efforts have been focused on conceptualizing and measuring social impact as output (Rawhouser et al. 2019), yet little is known about what factors might trigger SIM and how such factors combine to enable alternative conceptualizations and measurements. Our analyses reveal an array of alternative solutions for SIM, showing a much more varied reality than originally thought. Our four SIM approaches shed light on the combinations of antecedents underlying such diversity, suggesting that the how to “do” outcome measurement is contingent upon combinations of venture- and contextual-level factors, not just guidance provided by institutionalized governance and enforcement. These are unexpected, yet consistent discoveries for which a priori predictions would have been unreasonable (Robinson, 2019). Molecke and Pinkse (2017) offer an interesting explanation for how social entrepreneurs handle the pressure to measure social impact using a bricolage lens. While bricolage is promising for our understanding of spontaneous emergence, their examination focuses on formal methodologies and the strategic handling of accountability. Our findings expand Molecke and Pinkse’s (2017) contribution by showing “forms of bricolage” in the absence of formal methodologies and strategies. This also becomes a relevant expansion of Di Domenico, Haugh and Tracey’s (2010) work on social bricolage. Most notably, our findings expand Benjamin’s (2013) analysis of accountability paths. The author argues that the studied normative measurement guides were neither uniform in the conceptualization of beneficiaries, nor in how they directed social enterprises to use impact measurement. We show the “complex how” behind such non-uniformity and use. What this also tells us is that in emerging social spaces efforts to monitor social and commercial activities, managers’ performance, and downwards accountability, as Ebrahim, Battilana and Mair (2014) argue, may not be sufficient to resolve the many of accountability challenges faced by social enterprises.

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 certainly 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). Likewise, one could also expect that, as with most management practices, formalization of SIM will increase as the enterprise gains maturity. Social and financial reporting and audits become mandatory as the firm grows (Nicholls, 2009). Finally, investment is allocated against promises of future value, in this case both social and commercial. Thus, one would expect that the more investment social enterprises receive across different investment rounds, the stronger the demands from investors, through contractual obligations, for social enterprises to measure and report on social impact as reliably as possible, hence forcing them to formalize measurement practices (Nicholls, 2009). Drawing on US data from the *National Venture Capital Association*, Miller and Wesley (2010) found that indeed social investment focus influences the way social entrepreneurs frame social value. None of the latter is supported by our evidence, challenging grounded assumptions in this domain. This is further confirmed by the relatively high consistent relationships observed when these three are assessed in their negative form.

In empirical terms, we offer evidence and ways of capturing SIM and its antecedents in a social venturing context. Most of the research on SIM has relied on measurement practices and

data intended for large corporations, as shown by Rawhouser et al. (2019). KLD index, GRI reporting and similar are certainly relevant, yet inadequate to explain entrepreneurial phenomena. Hall et al. (2015) paved the way by showing how emergent processes leading to SROI can be captured. However, the use of key actors in the US, UK and Continental Europe might be problematic for inferential work. As previously argued, we suspect in that case the explanation of SIM formalization as outcome and its antecedents are actually informed by the institutionalized governance and accountability mechanisms already in place. Our research offer insight into how to measure, collect, analyze and report evidence on SIM which is pertinent to entrepreneurship scholarship.

We believe our findings open up interesting avenues for future research. Given the growing efforts of social ventures, in emerging economies, it would make sense to extend this study to other social sectors that have little or no legal or regulatory SIM pressures, to determine if our SIM categories are generalizable. Doing so would extend our understandings of the categorial antecedents and mechanisms for measuring, monitoring, and reporting social impact. We also see avenues for future research from our unexpected discoveries regarding the very limited effect of certifications, business maturity, and investment influence are not as critical as previously thought. While they allow for gaining further clarity regarding what actually enables impact measurement in nascent, they raise further as to whether certifications for example can actually trigger learning or performance in social ventures. Or is it simply about legitimacy. We would suggest that scholars expand and refine ways to understand SIM, with respect to certification practices, as they have been shown to bring about varying outcomes (Gamble, Parker & Moroz, 2019; Parker, Gamble, Moroz & Branzei, 2018). So far, certification has been seen as a concrete indicator of professionalism and a measure organizational rationalization (Hwang & Powell,

2009), yet this might be context-dependent as our findings show a disconnect between certification and other forms of organizational rationalization in nascent social sectors.

Concluding remarks

Social impact measurement (SIM) has evolved into an important area of theoretical and practical importance for purposes of accountability and governance. Yet, why and how social enterprises formalize SIM, in nascent social sectors, remains unknown. Our empirical findings uncover counterintuitive findings and novel approaches to SIM, which we hope will help to advance a growing and important field of research.

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TABLES AND FIGURES

TABLE 1
SIM formalization matrix⁴

Standardization	<i>High</i>	4. Non-specialized, standardized. e.g.: <ul style="list-style-type: none"> • ISO9001 • Tax returns • Donations 	5. Specialized and standardized. e.g.: <ul style="list-style-type: none"> • B Impact Assessment • Outcomes Star • SROI
	<i>Low</i>	2. Non-specialized, non-standardized. e.g.: <ul style="list-style-type: none"> • Facebook comments • Satisfaction surveys • Website hits 	3. Specialized, non-standardized. e.g.: <ul style="list-style-type: none"> • Units of service delivered • Beneficiaries' testimonials • Donors' perception of value
		<i>Low</i>	<i>High</i>
Specialization			

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

⁴ A score of 1 denotes complete absence of social impact measurement

TABLE 3
Analysis of necessary conditions

Condition tested	Presence of condition		Absence of condition	
	Consistency	Coverage	Consistency	Coverage
Future value of SIM	0.853414	0.527954	0.269186	0.368921
Operational value of SIM	0.835201	0.762557	0.341066	0.272668
Strategic value of SIM	0.690097	0.538286	0.480120	0.451204
Business maturity	0.552371	0.542194	0.586451	0.441823
Certification	0.254785	0.569207	0.745215	0.392528
Civic society pressure	0.612459	0.513836	0.554702	0.480602
Government pressure	0.565429	0.464096	0.579783	0.514097
Market pressure	0.409242	0.457138	0.590758	0.407170
Investment pressure	0.349849	0.472445	0.764277	0.476006

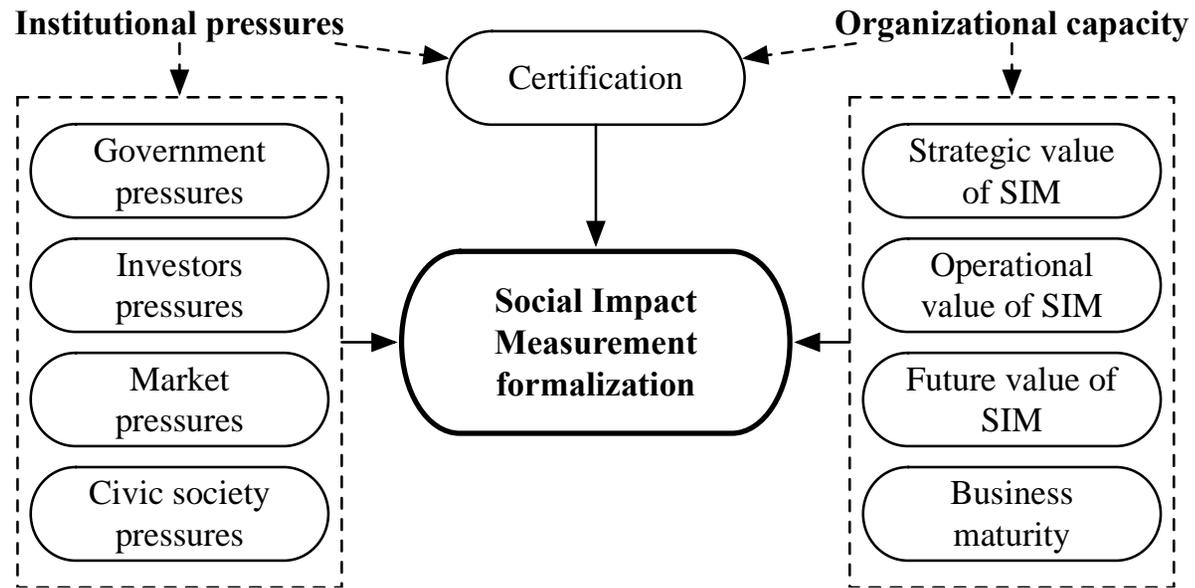
TABLE 4
Alternative SIM approaches

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 approaches: conceptualization and evidence

Type	Basic conceptualization	SIM attention	SIM orientation	SIM reporting	Illustrative evidence
Forward-looking & outcome-driven	Mechanism for understanding and communicating how improvements in current impacts contribute to the future success of the venture	Business performance	Enabling future success of the venture	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	Internal processes	Learning about organizational processes and practices	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	Market demands	Aligning impacts with market expectations	Broad, 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	Regulatory requirements	Aligning mission and impacts with regulatory requirements	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
Calibration Table

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

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

185	0.18	0.03	0.501	0.01	0.08	0.05	0.05	0	0	0
186	0.82	0.97	0.501	0.89	0.29	0.501	0.05	1	1	0.501
189	0.82	0.01	0	0.01	0.05	0.99	0.05	1	0	0
196	0.501	0.97	0.95	0.78	0.8	0.86	0.95	0	1	0.75
199	0.99	0.65	0.95	0.27	0.57	0.65	0.05	0	1	0.75
200	0.18	0.05	0.05	0.01	0.63	0.35	0.05	1	0	0
201	1	0.18	0.501	0.27	0.05	0.01	0.501	1	0	0.75
205	0.95	0.38	0.95	0.95	0.23	0.01	0.05	0	0	0.75
206	0.05	0	0	0.01	0.23	0.99	1	0	0	0
207	0.05	0.86	0.95	0.01	0.84	0.95	1	0	0	0
209	0.05	0.99	0.95	0.98	0.92	0.99	0.05	0	0	0.75
210	0.01	0.77	0.95	0.99	0.501	0.05	0.05	0	0	0.75
212	0.18	0.99	0.95	0.89	0.96	0.99	0.05	0	0	0.75
213	0.05	0.38	0.95	0.01	0.87	0.35	0.05	1	0	0
214	0.82	0.27	0.95	0.61	0.63	0.35	0.05	1	0	0.75
215	0.05	0.27	0.501	0.99	0.04	0	0.501	1	0	0.75
220	0.501	0.501	0.95	0.98	0.87	0.35	0.501	1	0	0.75
221	0.05	0.18	0.95	0.61	0.35	0.08	0.05	1	0	0.501
226	0.05	0.86	0.95	0.05	0	0	0.05	1	0	0.75
228	1	0.92	0.95	0.98	0.69	0.65	1	1	0	1
232	1	0.501	0.501	0.95	0.96	0.95	0.501	1	0	0
233	0.95	0.86	0.95	0.05	0	0	0.95	0	0	0.501
236	0.01	0.92	0.95	0.78	0.43	0.35	0.501	1	0	0.75
239	0.99	0.95	0.05	0.01	0.14	0.501	0.501	1	0	0
240	0.05	0.05	0.501	0.95	0.18	0.01	0.05	0	0	0.75
242	0.05	0.05	0.95	0.01	0.99	0.99	0.95	1	0	0
243	0.501	0	0	0.01	0.97	0.95	0.05	0	0	0
244	0.501	0.03	0.95	0.01	0	0	0.05	0	0	0
245	0.99	0.27	0.05	0.89	0.03	0.05	0.05	0	1	1
246	0.95	0.77	0.501	0.01	0.9	0.86	0.501	0	0	0
249	0.18	0.12	0.95	0.01	0.95	0.65	0.05	0	0	0
250	0.05	0.86	0.95	0.27	0.14	0.14	0.05	0	0	0.501
251	0.05	0.27	0.95	0.01	0.69	0.97	0.05	1	0	0
255	1	0.86	0.95	0.89	0.96	0.86	0.05	0	0	0.501
256	0.95	0.05	0.95	0.61	0	0	0.05	1	0	0.501
257	0.05	0.86	0.95	0.78	0.98	0.23	0.05	0	0	1
260	0.05	0.03	0.05	0.01	0.96	0.99	1	0	0	0
263	0.05	0.77	0.95	0.61	0.63	0.99	0.05	0	0	0.75
264	0.82	0.12	0.05	0.01	0.18	0.05	0.05	0	0	0
265	0.05	0	0.95	1	0.18	0.08	0.05	0	1	0.75

269	0.82	0.92	0.95	0.01	0.84	0.14	0.05	0	1	0
270	0.18	0.77	0.95	0.27	0.75	0.35	0.05	1	0	0.75
272	0.05	0.501	0.501	0.01	0.06	0.05	0.05	1	0	0
273	0.95	0.86	0.95	0.01	0.69	0.77	0.501	0	0	0
275	0.501	0.501	0.05	0.01	0.08	0.65	1	1	1	0
276	0.05	0.95	0.95	0.78	0.63	0.01	0.05	0	1	1
277	0.82	0.77	0.501	0.98	0.96	0.501	0.05	0	0	0.501
278	0.05	0.02	0.501	0.01	0.43	0.95	0.501	1	0	0
283	0.95	0.77	0.95	0.61	0.35	0.86	0.05	0	1	0.75
284	1	0.99	0.95	0.61	0.98	0.95	1	0	0	1
287	0.05	0.86	0.95	0.01	0.23	0.01	0.05	0	0	0
288	0.18	0.92	0.95	0.95	0.03	0.08	0.05	1	0	1
289	0.05	0.86	0	0.78	0	0.77	0.501	0	0	0.501
292	0.05	0	0.95	0.05	0	0	0.501	0	0	0.501
293	1	0.99	0.95	1	0.92	0.92	0.501	1	1	1
297	0.05	0.77	0.501	0.01	0.35	0.99	0.501	1	0	0
302	0.82	0.77	0	0.01	0.03	0.35	0.05	0	0	0
303	0.01	0	0	0.27	0.69	0.95	0.05	0	0	0.75
304	0.18	0.99	0.95	0.78	0.99	0.97	1	0	0	0.501
305	1	0.501	0.05	0.95	0.94	0.95	1	1	0	0.75
306	0.05	0.77	0.501	0.01	0.06	0.08	0.05	0	0	0
309	0.501	0.03	0.05	0.01	0.99	0.99	0.05	0	1	0
310	0.99	0.77	0.95	0.78	0.94	0.95	0.05	0	0	0.75
312	0.05	0.95	0.95	0.01	0.95	0.99	0.05	1	0	0
313	0.95	0.27	0.95	0.78	0.01	0.99	0.95	0	0	0.75
314	0.05	0.97	0	0.01	0.69	0.08	0.05	0	0	0
318	0.01	0.95	0.95	0.01	0.99	0.99	0.05	0	0	0.501
319	0.501	0.38	0	0.01	0.29	0.14	0.501	1	0	0
322	0.99	0.38	0.95	0.05	0.87	0.99	0.05	0	0	0.75
324	0.05	0.01	0	0.01	0.03	0.05	0.501	0	0	0
326	0.05	0.18	0.501	0.89	0.43	0.86	0.501	1	0	0.501
327	0.18	0.77	0.95	0.27	0	0	0.95	1	0	0.75
329	0.501	0.27	0.95	0.99	0.01	0.35	0.05	0	0	0.75
330	1	0.38	0.95	0.89	0.01	0.35	0.05	0	0	0.75
331	1	0.77	0.95	0.98	0.69	0.65	0.05	0	0	0.75
338	0.05	0.92	0.95	0.99	0.35	0.35	0.501	1	0	0.501
339	0.501	0.65	0.05	0.89	0	0	0.501	1	0	0.501
340	0.05	0.97	0.501	0.89	0.35	0.01	0.05	1	1	0.75

APPENDIX B
Truth table

Strategic value	Future value	Operational value	Civic society	Government	Market	Cases	Outcome	Consist.
1	1	1	1	0	1	3	1	0.962642
1	1	1	0	0	1	6	1	0.957929
1	1	1	0	1	0	1	1	0.953411
0	1	1	0	1	1	2	1	0.949773
0	1	1	0	1	0	1	1	0.942639
0	1	1	0	0	1	5	1	0.939918
0	1	1	0	0	0	5	1	0.938105
1	1	1	0	1	1	3	1	0.936981
0	0	1	0	0	1	2	1	0.933624
1	0	1	1	1	0	1	1	0.918593
1	0	1	0	0	1	2	1	0.918088
0	1	1	1	0	1	3	1	0.911806
0	0	1	0	0	0	1	1	0.911036
0	1	1	1	0	0	1	1	0.903991
1	1	1	1	1	1	6	1	0.879729
1	1	1	1	0	0	5	1	0.878099
1	1	1	1	1	0	20	1	0.847226
1	0	1	0	1	0	1	1	0.836901
1	1	1	0	0	0	3	1	0.827369
0	1	1	1	1	1	1	1	0.803148
0	1	1	1	1	0	6	1	0.801317
1	0	1	1	1	1	1	0	0.797293
1	1	0	0	0	1	4	0	0.69342
0	1	0	0	0	1	2	0	0.674358
1	1	0	1	0	1	2	0	0.624632
0	1	0	0	1	0	1	0	0.616323
1	1	0	0	1	0	2	0	0.568919
0	1	0	1	1	0	6	0	0.546143
0	1	0	1	0	1	2	0	0.532389
1	1	0	1	0	0	3	0	0.489519
1	0	0	0	1	0	1	0	0.486725
1	1	0	1	1	0	11	0	0.471718
1	0	0	1	0	0	1	0	0.455919
1	1	0	0	0	0	5	0	0.444012
1	1	0	0	1	1	2	0	0.439686
0	1	0	0	1	1	1	0	0.436094

0	0	0	0	0	1	1	0	0.420142
0	0	0	0	1	0	3	0	0.418884
1	0	0	0	0	0	1	0	0.413336
1	1	0	1	1	1	2	0	0.391667
0	1	0	0	0	0	6	0	0.370839
0	0	0	1	0	1	2	0	0.363062
0	0	0	1	1	0	4	0	0.350143
1	0	0	0	0	1	1	0	0.348933
1	0	0	0	1	1	2	0	0.338261
0	1	0	1	1	1	2	0	0.327434
0	0	0	0	0	0	5	0	0.254384
0	0	0	0	1	1	1	0	0.24864
