

Social impact measures for social innovation: Challenges and pathways*

Medidas de impacto social para a inovação social: Desafios e caminhos

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To cite this paper: Cunha, J., Alves, W., & Araujo, M. Social impact measures for social innovation: Challenges and pathways. *Revista de Administração Mackenzie*, 25(3), 1–32. <https://doi.org/10.1590/1678-6971/eRAMR240012>

RAM does not have information about the existence of open data regarding this manuscript.

RAM does not have authorization from the authors and/or evaluators to publish this article's review.

* This work has been supported by Fundação para a Ciência e Tecnologia (FCT) within the Project Scope: PTDC/EGE-OGE/31635/2017.



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ABSTRACT

Purpose: How to evaluate the social impact of social innovation has emerged as an important question posed by academics, organizations, and policymakers in recent years. One reason for this is the increasing concern with the social impact of different types of organizations and social practices, particularly in response to a recognition of the urgency of developing more inclusive economies and societies. To find an answer to this question, this research seeks to investigate the state-of-the-art in terms of social innovation impact measurement, drawing on both scientific literature and practitioner literature.

Originality/value: This research discusses the challenges posed by measuring the impact of social innovation initiatives and how these measurements may change the assessment process. The analysis finds that methodologies for measuring social innovation have mainly been undertaken in Europe, where these initiatives are largely addressed.

Design/methodology/approach: This paper adopted a qualitative research approach based on the scoping review method. This method is widely used to identify emergent topics in scientific literature, aiming to identify implications for research and decision-making. The research was developed based on different steps to obtain information about the social impact measurement indicators and their overall contribution to the advancement of social innovation.

Findings: The results also confirmed the lack of social innovation frameworks, methodologies, and tools capable of measuring the social impact of social innovations. Furthermore, a set of barriers in this field was identified, which can be used to channel better upcoming academic research on developing social impact indicators for social innovation.

Keywords: social innovation, social impact, indicators, measurement practices, challenges

RESUMO

Objetivo: Como avaliar o impacto social da inovação social surgiu como uma importante questão colocada por acadêmicos, organizações e decisores de políticas nos últimos anos. Uma razão para isso é a crescente preocupação com o impacto social de diferentes tipos de organizações e práticas sociais, particularmente em resposta ao reconhecimento da urgência de desenvolver economias e sociedades mais inclusivas. Para encontrar uma resposta a esta pergunta, esta pesquisa procurou investigar o estado-da-arte em termos de medição do impacto da inovação social, com base na literatura científica e na literatura prática.

Originalidade/valor: Esta pesquisa discute os desafios colocados pela medição do impacto das iniciativas de inovação social e como essas medições podem potencialmente mudar o processo de avaliação. A análise constata que as metodologias de mensuração da inovação social têm sido, principalmente, realizadas na Europa, onde essas iniciativas são amplamente abordadas.

Design/metodologia/abordagem: Este artigo adotou uma abordagem de pesquisa qualitativa com base no método de *scoping review*. Este método é amplamente utilizado para identificar temas emergentes na literatura científica, visando identificar implicações para a pesquisa e tomada de decisão. A pesquisa foi desenvolvida com base em diferentes etapas, para obter informações sobre os indicadores de medição de impacto social, bem como sua contribuição geral para o avanço da inovação social.

Resultados: Os resultados também confirmaram a falta de estruturas, metodologias e ferramentas de inovação social capazes de medir o impacto social das inovações sociais. Além disso, foi identificado um conjunto de barreiras neste campo, que podem ser usadas para melhor canalizar as próximas pesquisas acadêmicas sobre o desenvolvimento de indicadores de impacto social para a inovação social.

Palavras-chave: inovação social, impacto social, indicadores, práticas de medição, desafios

INTRODUCTION

Over the last decades, society worldwide has been facing several challenges in important areas such as educational, public health, environmental, economic, and cultural inequality. In this concern, governments, universities, and private organizations can play an important role in developing initiatives to overcome these challenges (Stephan et al., 2016). In recent years, there has been increasing concern with the social impact of different types of organizations and new social practices, particularly in response to a recognition of the urgency of developing more inclusive economies and societies.

Social innovation (SI) has emerged as an important activity to enhance social value creation for companies and communities, contributing to socio-economic inclusion (Weaver & Marks, 2017). According to Dobele et al. (2015), SI has been an important approach to supporting governments and companies in promoting key structural changes for society, namely welfare and access to financial resources. The authors also defend that SI can be considered a new, sustainable, and effective strategy to overcome the primary social problems of society and individuals. As part of the community, governments and companies are important stakeholders and critical players in building networks with the community to address social challenges within the SI scope (Dhondt, 2016). Moreover, Dionísio and Vargas (2020) argue that SI is a major way for companies to help solve social problems through innovative procedures and strategies while reaching economic results.

However, measuring the impact of SI actions and practices is a very significant challenge for researchers. Research in this area has not yet reached the level of consolidated metrics (or indicators) used in the context of technological and economic innovation (*e.g.*, R&D expenditure, number of patents, graduates in science and technology, value-added) (Cunha & Benneworth, 2020). This challenge assesses the impact of SI initiatives and an urgent need for the development of the SI field due to the benefits brought about by these initiatives to different sectors of society that cannot yet be fully measured and debated (Brattström et al., 2018). Therefore, it is of paramount importance to be able to establish and consolidate strategies for measuring and evaluating the impact of SI initiatives or projects, whether at organizations, territories, or practice levels (Hernández-Ascanio et al., 2021). Moreover, the intended and unintended positive and negative impacts of SI should be considered in the analysis. Although SI initiatives aim to benefit owners of a pressing social problem, the intervention might produce unforeseen negative impacts (Novikova, 2022).

Despite the interest and popularity of SI, the development of reliable and shared measurement practices has emerged as a barrier to the widespread adoption of SI practices (Unceta et al., 2019). According to Lee et al. (2021), SI is sometimes regarded as a buzzword growing over the years. The urgency to measure the social impact in the domain of SI has become an important topic of research, especially because the majority of these initiatives are financed (either by private or public funds). They can have a great impact on social well-being. Yet, measuring the social effects of SI should consider several viewpoints from different stakeholders, which configures barriers for researchers working on this topic (Costa & Pesci, 2016; Molecke & Pinkse, 2017).

Part of these barriers arise from the fact that SI is a complex process in which relatively “small” activities may contribute to driving structural socio-economic changes, creating a strong attribution problem (Živojinovic et al., 2019).

In this context, drawing on the recent academic interest in developing indicators and metrics to assess the impact of SI initiatives, this research seeks to investigate the state-of-the-art in terms of SI impact measurement, resorting to scientific and practitioner literature. Additionally, this research will discuss the challenges posed by measuring the impact of SI initiatives and how these measurements may change the assessment process. This research thereby contributes to an important public policy debate regarding the effective use of SI initiatives to provide novel services (either by private companies, public agencies, or third-sector organizations) in promoting inclusive economies and societies (Rawhouser et al., 2019; Stephan et al., 2016).

The remainder of this paper is organized as follows. The next section begins with a literature review on SI impact measurement. The third section outlines the research strategy followed in this paper. Key results are described and discussed in the fourth section. The last section presents the paper’s main conclusions and points out some limitations of the research as well as directions for future work.

FRAMING SOCIAL INNOVATION MEASUREMENT

Measuring social impact

In the last decades, the search for a better understanding of how organizations can build profitable operations while addressing social concerns and

generating positive impacts on their target populations has been a growing concern of the academy (Lazzarini, 2018). Also, the increasing social needs have called the attention of researchers to understand better the context of the societal shift towards a sustainable quality of life (Bund et al., 2013). Technological and economic innovations are among the most important contributions to societal well-being through the generation of employment and economic growth (Rehfeld et al., 2015). It is the case of digital social innovation (DSI), which has emerged as part of SI initiatives, focusing on the development of new technologies to solve social problems (Rodrigo & Palacios, 2021). Nonetheless, tackling society's social and economic challenges today is not enough (United Nations, 2020). To go beyond the technological and economic perspective, Rawhouser et al. (2019) claim that social impact is an important element of social entrepreneurship. It should be considered an alternative to measuring the social value of the organizations. Also, Liston-Heyes and Liu (2021) argue that those social enterprises play an important role twofold: generating economic and social value by delivering public services to society and encouraging individual entrepreneurs to develop and provide social outputs for society.

Social impact can be defined as beneficial outcomes resulting from prosocial behavior enjoyed by the intention of that behavior and by the broader community of individuals, organizations, and environments (Rawhouser et al., 2019; Stephan et al., 2016). An important conceptual distinction should be made between the output, outcome, and impact of a given intervention or project (Cunha & Benneworth, 2020). Output is usually used to refer to the immediate, tangible yield (or product) of the intervention or project. Outcomes are the medium-term results of that intervention and typically imply behavioral changes. Finally, impacts are the long-term results, which have a broader spectrum, often producing a systemic change and, thus, are more challenging to measure. Social impact has been considered to measure impacts in different domains, such as education, sustainability, poverty, and healthcare. For instance, social return on investment focuses on companies' activities to surrounding communities (Moss et al., 2011; Santos, 2012). Social performance addressing social needs (Mair & Martí, 2006; Nicholls, 2012; Salazar et al., 2012), social returns exploring the intersect between financial investment and social issues (Emerson, 2003), and social return on investment (SROI) prioritizing the stakeholders and their social value (Hall et al., 2015) are the most current approaches used in this field.

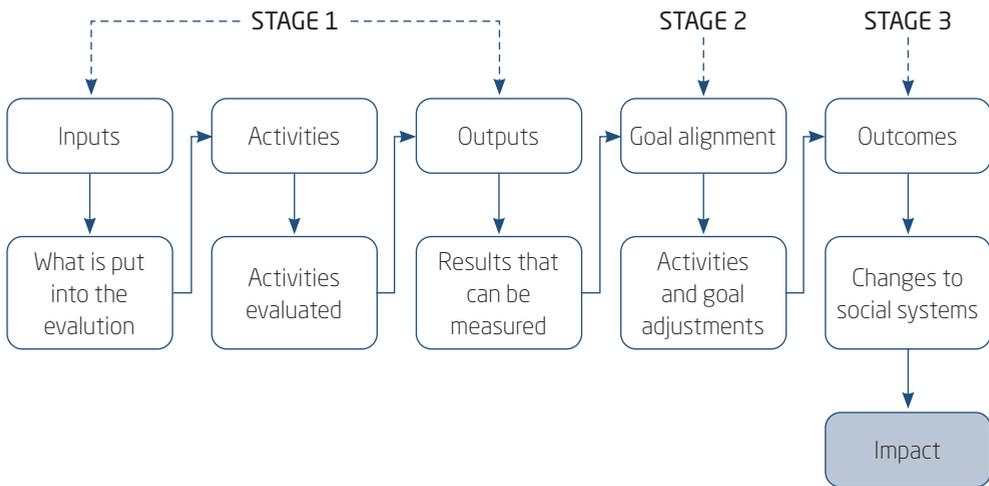
Thus, scientific researchers are paying more attention to different organizations' economic and societal impacts. This is particularly evident in organizations with a social link due to the ongoing need to measure the societal impact as well as the social performance of those organizations (Rawhouser et al., 2019). According to Lazzarini (2018), measuring the real impact of organizations on society is a complex task that involves several issues related to causality, comparability, and cost. For instance, managers and policymakers need to know the outcomes caused by their efforts (causality); if standard indicators were used for different sectors, the outcomes need to be contrasted (comparability), and the issue of cost, which is related to the challenges for financial support to collect and assess data, also requires attention. Yet, despite the extant need for measuring societal impact and performance, methodologies, frameworks, and standard indicators developed to provide a comprehensive social performance are underdeveloped (Bund et al., 2015).

Due to the lack of consensus and the widespread confusion about what social impact entails, creating indicators and metrics to measure social impact is a complex and challenging task (Mihci, 2020). To measure social impact effectively, non-governmental organizations (NGOs), grant-makers, governmental agencies, and policymakers have been searching for credible tools to foster better communication and understanding in this field (Antadze & Westley, 2012). Nonetheless, while public organizations touch upon measuring social impact, no formal guidelines regarding impact measurement or methods are found in the current literature (Dufour, 2019). The current literature shows that social impact assessment should stand more than a single limited process to measure a single social output. This approach can embrace different areas covered by the social initiative to create participatory and deliberative processes which may result in a better quality of life for the community (Ives & Kendal, 2014; Liston-Heyes & Liu, 2021; Schubert et al., 2013; von Jacobi & Chiappero-Martinetti, 2017).

Aiming to contribute to overcoming the barrier of conceptualization and definition to measure social impact, Dufour (2019), in line with Rawhouser et al. (2019) and Stephan et al. (2016), suggests that indicators to measure social impacts should include all social and cultural consequences to the human population of any public or private actions that can change how the society live or work. Social impact can also be measured through monetary, quantitative, or qualitative measures, depending on the choice of the indicator (or metric) on the context in which the SI occurs and also on who are the beneficiaries of the SI (ESRC, 2022; Lindgreen et al., 2021).

The most well-known method developed focusing on social impact measurement is the impact value chain (IVC) method proposed by Clark and Rosenzweig (2004). Figure 1 summarizes the reasoning underlying this method. It covers several stages of the IVC, ranging from resources used as inputs to the different outcomes that contribute to social change.

Figure 1
Impact value chain



Source: Adapted from Clark and Rosenzweig (2004).

One key feature of the IVC method is that it provides a framed methodology for the way evaluations of social impact should be carried out. A fundamental aspect provided by the IVC method is a breakdown of the evaluation process, which includes three main stages, namely operational framing (the inputs and overall approach are defined and agreed upon by the main stakeholders involved), diagnostic (activities and goals are assessed to be adjusted), and scenarios (from the diagnostic phase the impact and changes in the social systems are estimated).

Indicators and metrics for measuring SI impact

In the last years, initiatives in the field of SI have emerged on the agenda of researchers and policymakers seeking to contribute to overcoming the challenges faced by modern society (Grigore, 2013). SI has been seen as a

new research field to address collaboration, improved capabilities, and better use of societal resources, which should help to empower and reengage vulnerable groups (Rehfeld et al., 2015). Nonetheless, developing indicators and metrics for measuring the social impact of these SI initiatives is still considered a blank spot within innovation research (Spila et al., 2016).

According to Kleverbeck et al. (2019), the impact of SI can be measured considering three main levels, namely: 1. organizational innovativeness, 2. regional innovation capacity, and 3. early indicators in discourse. For each level, the authors defend a need to distinguish awareness in action and the ability to act in each level proposed. After defining the proposed levels, the authors suggest five thematic areas for developing SI indicators. Table 1 summarizes the proposed areas and their context of application.

Table 1
Thematic areas for SI indicators

Thematic area of SI indicators	Context of application
Formal structure	Includes indicators that may identify the formal structure of the organization studied. It should describe the social innovativeness of the organization by comparing different types and forms.
Decision-making process	Focus on targeted groups of the organization and should refer to the organization's intention to involve staff in projects reacting to creativity and knowledge.
Social innovativeness	Draws attention to the capacity of social innovativeness, considering input, output, and outcomes of the innovative activities developed by the organization.
Business model	Considers financial aspects related to factors of growth. It can consider aspects such as digitalization, reasons to expand, or even production indicators.
Context	Focus on the context in which social innovation is embedded (e.g., cooperation, competition, barriers to developing initiatives, and need for support).

Source: Adapted from Kleverbeck et al. (2019).

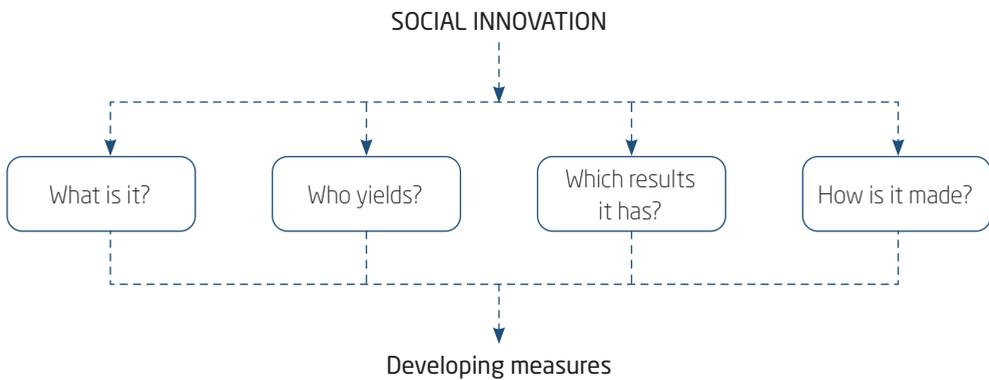
The idea behind thematic areas presented in Table 1 aims to address a broad approach to developing SI indicators to assess different types of SI and determine the degree of innovativeness in an organizational context.

According to SI, focused on developing changes for the society and ecosystems, and also regional development, indicators for this area should be developed considering different areas and analyzed at micro, meso, and macro levels (De Pieri & Teasdale, 2021; Gasparin et al., 2021).

According to Spila et al. (2016), SI should be understood as a cyclical process with different approaches and various levels of analysis and units of measurement. Therefore, they suggest a set of questions to be considered when developing indicators/metrics to measure the impact of SI initiatives/projects (see Figure 2).

Figure 2

Developing indicators and metrics for social innovation



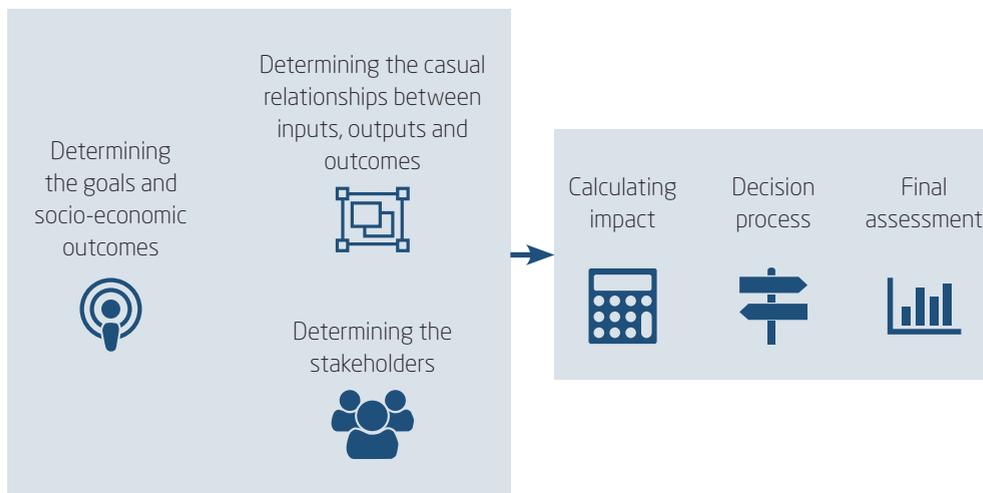
Source: Adapted from Spila et al. (2016).

According to the reasoning shown in Figure 2, the definition of indicators and metrics has to be guided by at least four basic questions:

- What is social innovation?
- Who yields social innovation?
- Which results do social innovations have?
- How is social innovation made?

In addition, Dhondt (2016) also suggests five steps to be considered for the ex-ante impact assessment of SI, which is sequentially interconnected (Figure 3).

Figure 3
Steps for ex-ante impact assessment of social innovation



Source: Adapted from Dhondt (2016).

According to Figure 3, the first step to be considered is related to the goal of the SI itself and which outcomes are expected to be achieved; the second suggests the need to relate the outcomes with the inputs, which will be possible since the goal of SI is already settled; the third is related to the definition of the role of stakeholders in the assessment process; the fourth step recommends to calculate the possible social impact from the SI initiative or practice; the final step is linked to the decision process, encompassing the need to present and to discuss the outcomes of impact assessment for stakeholders. In these lenses, the answer to these questions strengthens the objective and effectively impacts the development of indicators/metrics for social impact assessment of SI. It is also important to highlight that the region's characteristics and societal conditions are prerequisites for developing novel approaches for measuring SI impact. Nevertheless, the flourishing interest in tackling the challenge of creating metrics for SI remains a barrier since long-standing and new social needs need to be addressed more effectively (Schmitz et al., 2013).

Žičkienė & Tamasauskiene (2021) claim that measuring the impact of SI is an extremely important challenge to be faced, due to the importance of better understanding factors that deal with societal challenges on national or global scales. Those authors defend that measuring the social impact of

SI can help support the development of new initiatives addressing the existing problems faced by society and preventing them across the globe. Doing so can additionally support and encourage different stakeholders to work in developing initiatives and projects towards a sustainable society.

Despite indicators and metrics for SI being nascent, this area has evoked interest among researchers and practitioners, allowing the development of some research in recent years. For instance, Krlev et al. (2014) presented an approach to measure SI based on a set of indicators that emerged from a systematic literature review focusing on national and regional measurement for SI. Cunha and Benneworth (2020) suggested a framework to measure the impact of SI initiatives. The research identifies boundary conditions to support decision-makers on an effective set of social indicators. The Simpect project has also developed a framework to provide a systematic impact assessment for SI. The framework is based on several steps and suggests different tools focusing on a mixed-method approach to cover various dimensions of SI (Simpect, 2014). Aiming to measure the SI of social entrepreneurship, the program European Barcamp developed the ES+Methodology. The methodology relies on local experts to map social initiatives from local entrepreneurship ecosystems, and then a set of criteria is used to analyze the social impact of these initiatives (IES, 2014). Also, a Triple Bottom Line (TBL) approach was developed by Dainienė and Dagilienė (2015). The research resorts to the theoretical background to develop a measurement model for SI.

The final result of the research aimed to measure the value of SI through key measurement indicators. As a result of the project Regional Social Innovation Index (Resindex), a conceptual model for measuring SI at organizational and regional was developed (Sinnergiak, 2013). The model is based on the empirical results of 282 organizations. The main result of the research was a pilot experience of measurement of SI in different organizations (profit and non-profit organizations, universities, and technological centers) using a set of indicators. The Blueprint for Social Innovation Metrics (Bund et al., 2013) was developed under the TEPsIE research project. The project was a research collaboration among a set of European institutions and represented a first attempt to measure the impact of SI at the national level. A framework based on an indicator system was developed, including aspects such as the availability of financial streams for developing SI projects and cultural factors that could foster innovation (Schmitz, 2013). Also, a recent publication by the Organisation for Economic Cooperation and Development (OECD, 2021) emphasized the need for adequate

tools and frameworks for policymakers to analyze and evaluate the impact of SI initiatives. For that purpose, a methodological framework is proposed to understand the underlying conditions, supporting measures to promote SI, and the ways and means to evaluate them. The framework conditions are structured in five dimensions (namely cultural and behavioral, laws and regulations, institutional settings, SI community, and resources available). For each of these dimensions, a set of indicators is identified.

From a broader perspective, these methodologies, frameworks, and tools can be found in the literature with different conceptual and operational understandings. The main challenge here is the lack of standard units of measurement that provide options for an adequate assessment of SI. In sum, there is no established general set of indicators or metrics for SI impact measurement. Yet, as the discussion around the need for those indicators for SI is growing significantly, efforts from institutions, government, scholars, and researchers toward developing a unified SI measurement framework are still required. Nonetheless, due to the multidimensional nature of the SI concept, developing a unified methodology or framework for this aim remains a challenge.

METHODOLOGY

This paper adopted a qualitative research approach based on a scoping review method. This method is widely used to identify emergent topics in scientific literature, aiming to identify implications for researchers and decision-making (Sargeant & O'Connor, 2020). One advantage of this type of review is its ability to provide a rigorous and transparent method for mapping areas of research by illustrating the field of interest in terms of the volume, nature, and characteristics of the primary research, making it possible to identify the gaps in the evidence base, as well as summarizing and disseminating research findings (Arksey & O'Malley, 2005). To apply this method to our study, the procedure suggested by Tricco et al. (2016) was followed, which comprises the following steps: 1. the definition of a predefined protocol in the review design; 2. the selection of a research question; 3. the selection of a set of criteria to search the research topic; 4. the selection of the eligible studies to be considered in the analysis; 5. the selection of a relevant data based searched; 6. summarize the implications of findings; and, finally, 7. reporting and discussion.

This method corresponds to a systematic procedure for reviewing extant literature on the topic under research. Regarding the steps followed in this research, Table 2 summarizes the method used, which aligns with Tricco et al. (2016).

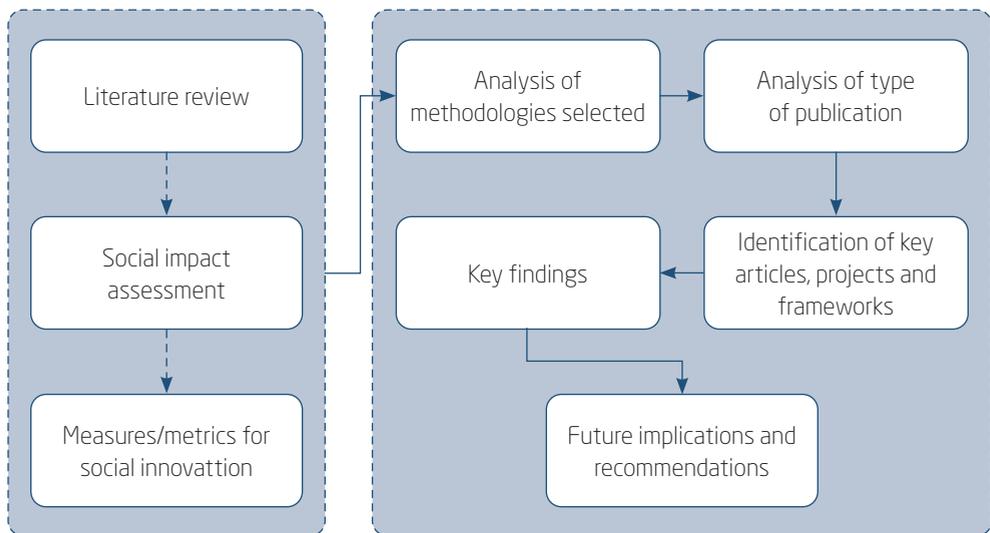
Table 2
Proposed scoping review method

Scoping review method	Proposed in this research
1. Definition of a predefined protocol in the review design	Screening research focusing on SI impact measures
2. Selection of a research question	What are the main challenges posed by measuring the impact of SI initiatives? How can these measurements potentially change the assessment process?
3. Selection of a set of criteria to research scientific works on the topic	Potential studies and reports presenting methodologies able to assess the social impact of SI. Selected keywords: social innovation projects; social innovation measures; frameworks and social innovation; tools and social innovation.
4. Selection of the eligible studies to be considered in the analysis	Works available in scientific journals, academic databases, NGO databases, and governmental agencies
5. Selection of a relevant database to be searched	Web of Science, Elsevier, European Commission Project Database
6. Summarize the implications of the findings	Frameworks, methodologies, and tools capable of measuring the social impact of social innovations
7. Reporting and discussion	Identify barriers to developing social impact indicators for social innovation

The research was developed based on the different steps presented in Table 2 to obtain information about the social impact measurement indicators and their overall contribution to SI advancement. These steps are explained in further detail below and are summarized in Figure 4. To capture the importance of methodologies or frameworks for measuring SI impact, this research began with a comprehensive literature review identifying potential studies and reports presenting those methodologies or frameworks.

However, after searching numerous journals, academic databases, NGOs databases, and governmental agencies on this topic, few works were found, demonstrating the lack of research in this field or a gap in the literature. Based on the limited scientific literature available concerning indicators/metrics for the social impact of SI, a set of articles, projects, and frameworks were selected as the primary data source. As part of this step, this approach was then able to enrich the selection of indicators and the reliability of this research.

Figure 4
Research methodology



In the second step, the impact assessment methodologies were then carefully analyzed, highlighting some aspects such as the type of publication in which they have been presented, their approach, and their region of origin. Then, the kind of methodology was identified, whether it was a project, a framework, an IT tool, or a work based on indicators. In the third step of the procedure, the main findings were analyzed according to the specific aspects described in the key findings section. They were drawn based on the limited scientific literature regarding the social impact measurement of SI. In the fourth and final step, the main findings were summarized to provide implications for stakeholders and policymakers.

FINDINGS

This section presents and discusses the key findings from the literature review on the social impact measurement of SI. The results presented here are based on the analysis of 34 documents related to social impact measures for SI, namely scientific papers, European reports, and European projects. The documents analyzed were from 2013 to 2019, resorting to three primary sources of data: Web of Science, Scopus, and European Social Innovation Database. The works were selected using the following search string: TITLE-ABS-KEY (“social innovation”) AND (“social impact measure”), applied to the databases mentioned above. Then, the research discussion of findings considers four main interrelated aspects: type of publication, type of methodologies proposed, region, and institution of development.

Social innovation and its current scenario

Despite the importance of SI, as outlined in the section “Framing social innovation measurement”, a standard definition of the different approaches found in the current literature is still challenging. The main reason for this is the fact that this concept has applicability in different types of organizations, meaning that key figures (or agents) such as private companies, public organizations, and NGOs might use the definition of SI for different routes. Based on the literature reviewed, the results showed that the concept of SI has emerged as an important activity to enhance social value creation for companies and communities, contributing to socio-economic inclusion. A key result is related to the need for a better understanding of SI. To overcome the challenge of the lack of agreement on what SI entails, the current literature suggests some initiatives focusing on approaches to better understanding SI and its application in the different levels of analysis (see, for example, Domanski et al., 2014; Spila et al., 2016). Such initiatives should support researchers and policymakers in dealing with the disruptions to the progress of initiatives in the field of SI caused by the lack of consensus about what SI entails. However, results showed that research related to SI are more accessible regarding entrepreneurial activities for companies, as discussed in Krlev et al. (2014). It shows that a more balanced and comprehensive approach, including social value for communities, is needed.

Regarding the possibility of measuring social value, the findings showed that SI addresses concerns about societal challenges. Thus, it has been seen as a new paradigm that involves efforts in a multi-disciplinary and multi-sectorial perspective focusing on the capacity to respond to the contemporary problems of modern society, as argued by Benneworth and Cunha (2015). Despite the broad and unanswered question about what the driver of SI is, measuring its social impact is regarded as one of the most important elements related to the body of knowledge about SI (European Commission, 2013) since it contributes to the possibility of measuring social value creation for both organizations and communities. Hence, it is considered a reference point for SI studies in the current literature.

At the level of indicators and metrics for SI, the literature review also highlighted the need to foster standard methodologies and frameworks to support organizations to develop an effective analysis of the social impacts of SI initiatives. This result underlines the need for further studies on the definition of comprehensive and broader accepted indicators and metrics to assess the possible social impact of SI. Nevertheless, a better understanding of the goal of impact assessment is also required. Research undertaken by Dhondt (2016), Cunha and Benneworth (2020), Dainienė and Dagilienė (2015), Lazzarini (2018), and Krlev et al. (2014) have already identified relevant aspects which may be considered when developing goals of SI as well as which outcomes are expected from the assessment.

Although the increasing discussion of SI is outlined in the current literature, the results presented here prove the importance of discussing the value of SI and its social impacts on both organizations and communities. It would enable the improvement of new capabilities from organizations to meet social needs.

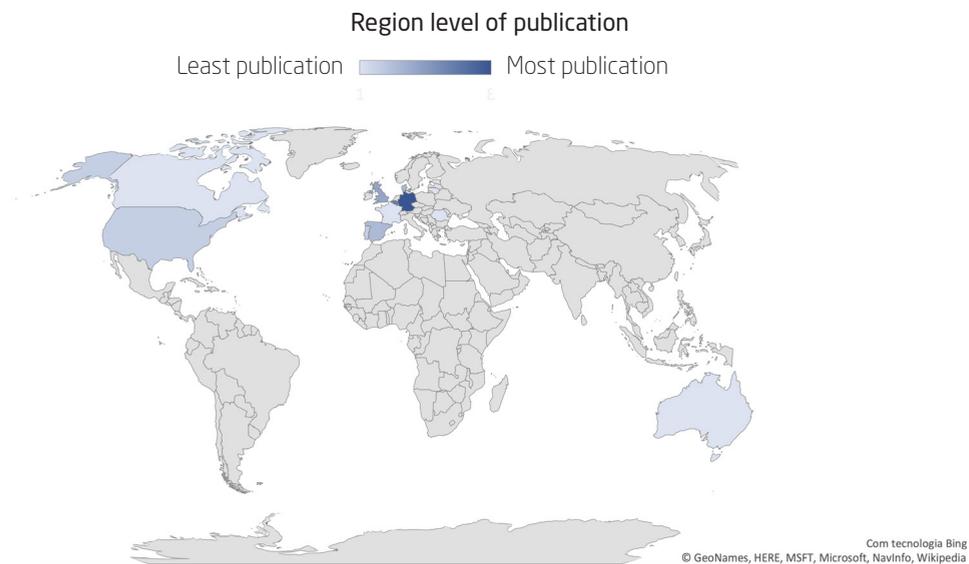
Social innovation: Measurement practices

Due to the lack of consensus about what SI involves, the creation of methodologies (or frameworks) aiming to measure its social impact is a complex and challenging task, as mentioned above. To ensure an in-depth investigation of the current situation regarding this issue, the results presented here focused on the main research reporting methodologies (or frameworks) to measure the social impact of SI. There is a shortage of academic research about the metrics and frameworks best suited to assess the impact of SI initiatives or practices (Cunha & Benneworth, 2020).

Measuring this impact is a very significant challenge for researchers as SI is a complex process (Jalonon, 2022), and research in this area has not yet reached the level of indicators used in the context of technological innovation (e.g., R&D expenditure, number of patents, graduates in science and technology, value-added) (Nicholls, 2015). As social innovations are cross-sectoral and cross-disciplinary, involving actors at various spatial scales, focusing on social value creation and community development, it becomes difficult to assess their social impact (Novikova, 2021). However, the growing importance of SI within policy circles and academia makes it necessary to explore which metrics and frameworks can be applied and overcome metrics' narrow focus on economic issues (Bund et al., 2015).

Figure 5 illustrates the main geographical regions where methodologies for measuring SI impact have been published. Initial results showed that Germany, Belgium, and the United Kingdom are the countries with the most research published. Findings showed that countries such as those located in Europe are active in initiatives related to SI. Therefore, some of these countries have been active in developing methodologies to measure the social impact of SI. The case of Belgium may derive from the fact that several initiatives in the area of SI are supported by organizations such as the European Union. Empirical research such as *Guide for Social Innovation* (European Commission, 2013), *European Barcamp* (IES, 2014), and *Theoretical empirical and policy foundations for building social innovation in Europe* (Bund et al., 2013) are a few examples of these initiatives. Despite the importance and growth of the discussion about the need to measure the social impact of SI initiatives and projects, the findings also showed that regions such as Africa, South America, and Oceania have a long way to go in developing research in this field. Results from Figure 5 show that North American countries (such as the United States) have experienced moderate growth in research toward measuring the impacts of SI. It can be justified due to the substantial investment in initiatives towards SI led by this country.

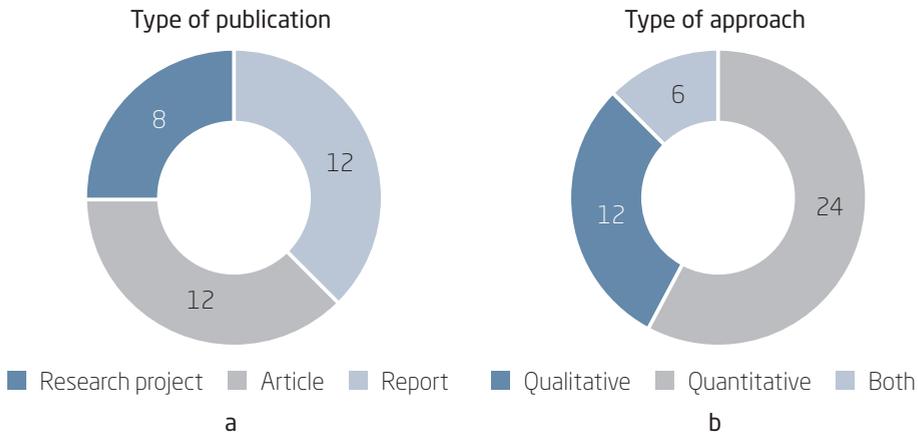
Figure 5
Number of publications by region



Regarding the publications' characteristics, many research projects and frameworks were observable, as presented in Figure 6a. Regarding the research projects, as discussed previously, these results can be explained by the increasing number of reports supported by the European Union focusing on methodologies and metrics for SI impact assessment. For the case of frameworks, the great number of publications found is justified due to the increasing interest of research groups investigating this area, made possible, likely, by the availability of public funding to support research on SI (Pinto et al., 2021). Therefore, the development of indicators and metrics in the SI field and its impacts are in an early stage, making publications in this area a challenging step ahead.

The analysis of results also indicates that for the publications consulted (e.g., Krlev et al., 2014; Cunha & Benneworth, 2020; Simpect, 2014, 2017; IES, 2014; Dainienė & Dagilienė, 2015; Sinnergiak, 2013; Bund et al., 2013), several different approaches have been used and applied. Yet, according to results summarized in Figure 6b, a notable share of quantitative works has been found in this research. For the quantitative studies to assess the potential and impacts of SI, the use of indicators are the main tool selected and used for this aim (see IES, 2014; Krlev et al., 2014; Schubert et al., 2013; Sinnergiak, 2013). However, further investigation on indicators for SI is required for a better discussion in this direction.

Figure 6
Type of publications and their approaches



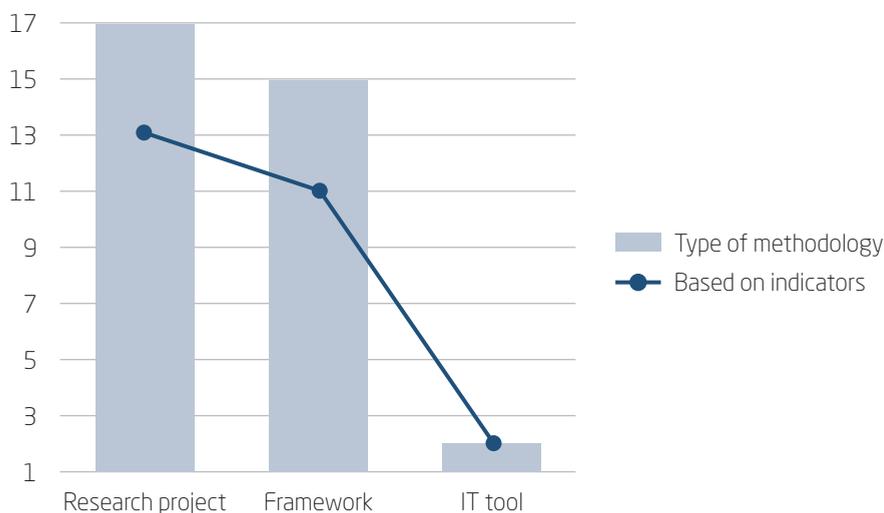
The results indicate that the methodologies developed mainly relate to frameworks and projects. The reason for this finding may be that the development of methods and metrics in the field of SI is a relatively new area of study, meaning that the ongoing research is still focusing on the development of frameworks to support methodologies for this aim (see Cunha & Benneworth, 2020; Tohidi & Jabbari, 2012), and for the case of projects, few initiatives have been developed (see Rehfeld et al., 2015; Şçandor, 2018; Simpact, 2014; Sinnergiak, 2013).

Regarding the characteristics of the types of publications, the results provide further insights focusing on which type of institutions have been developing those methodologies. It reveals that governmental agencies and research projects have been at the forefront of organizations working on the development of measurement tools for the social impact of SI. From the governmental agencies' perspective, the governmental support in Europe, for instance, can be considered in the last years as a springboard to support initiatives in this field (see Bund et al., 2013; European Commission, 2013; Hollanders et al., 2013). The results also show that NGOs, private companies, and research groups have developed few initiatives. Nevertheless, for the case of research groups, a set of research projects was found as for the case of Simpact, Tepsie, Innobasque, and Resindex (see Bund et al., 2013; Sinnergiak, 2013; Unceta et al., 2016). In this study, a distinction between research groups and research projects has been made. For the former, the research undertaken (or developed) has had no specific financial support from governmental agencies, being the output of these researches focused

on the publication of scientific articles. For the latter, most research projects have had specific financial support to study this particular issue, being the outcomes presented in both articles and reports, but mainly in reports.

To analyze the metrics used, this study focused on research where indicators were the primary source to assess the social impact of SI. Results shown in Figure 7 reveal that research projects and frameworks are mainly developed based on indicators. This finding can be explained by the fact that indicators are usually measured through established metrics. Different sectors primarily use indicators to assess different fields, such as companies' performance, social benefits, social impact, and sustainability.

Figure 7
Methodologies based on indicators



Measuring social impacts involves a considerable challenge regarding setting out what and how to measure, at the very least, because after defining the primary purpose of the assessment, there is a need to establish how the outcomes will be available for stakeholders. In summary, the results presented here provide helpful hints to understanding the importance of methodologies used to assess SI through social impact measures.

The analysis revealed that despite increasing discussion about SI over the recent years, the results presented in this research showed that the benefits of initiatives in this field are still under-discussed. Also, the results put in evidence the importance of social impact measurement practices.

However, few initiatives or guidelines emanating from the academy and public organizations were found in the literature reviewed. Few initiatives were observed regarding indicators, metrics, and tools for social impact assessment of SI. Although there is a notable need for standard methodologies/frameworks to assess the potential of SI through social impact, it remains a challenging path for both the academy and organizations.

Main barriers to measure the social impact of social innovation

The findings presented in this subsection are supported by the existing literature in the field of SI and social impact, particularly on barriers to developing social impact measures of SI. As the first two sections of this article, organizations face several obstacles to efficiently assessing the social impact of SI initiatives. This section presents the main barriers faced by public and private organizations concerning the design of methodologies, frameworks, and tools for SI. The identified barriers were manifold but are mainly related to 1. the definition of SI; 2. the benefits of this initiative; 3. the resources needed for designing methodologies; and 4. the challenges of selecting indicators and metrics.

Regarding the definition of SI, as discussed in the previous section, the lack of agreement about the meaning of SI and its impacts was considered one of the first barriers to design methodologies in this field. As discussed by Dhondt (2016), a clear definition of the goal and which outcomes are expected from SI are the cornerstone for designing metrics on this ground, meaning that a clear and standard definition is needed.

The benefits of SI initiatives were also identified as barriers. For instance, communication gaps that allow stakeholders to understand the positive benefits of measuring SI's social impact were identified as lacking in the current literature. In this case, social value measures have been seen as a valuable alternative to discussing their effects on communities and organizations. Yet, results showed a gap in communications between both regarding benefits and positive impacts of these initiatives.

The lack of financial support to develop research and methodologies to assess the social impact of SI was highlighted in the literature as a funding gap that needs to be overcome (Mendes et al., 2012; Weaver & Marks, 2017). In technological innovation, patents or trademarks often express and protect innovativeness. Few initiatives within the social impact arena have been developed since such measures are much harder to apply.

In the field of indicators and metrics to assess the social impact of SI, there are some available in the current literature, such as the ones available at the Global Report Initiative (GRI), the OECD, and the United Nations (Global Reporting Initiative, 2012; OECD, 2010; United Nations, 2017). However, there is still a lack of a standard set of SI indicators and metrics, which involves the conceptual background of SI, setting out a gap in the literature and revealing opportunities for future research.

Due to the increasing importance of SI initiatives to support governments, universities, and practitioners in developing new strategies to overcome the barrier of social difference, it is imperative to understand the impact of those initiatives. Delivering public services that can support poverty reduction efficiently has become a complex societal task for governments. Therefore, assessing the impact of those initiatives is an important task since, once properly measured, the development of SI initiatives can be targeted to and suitable for the specific public and civil society. Assessing the impact of SI initiatives or projects seeks to optimize the design and structure of a particular policy or program, the sequence of priorities, and its internal and external coherence (Simpact, 2017). However, it should be recognized that a “one-size-fits-all” measurement approach is not possible for all social innovations (Cunha & Benneworth, 2020). Therefore, there is a need to identify the type of SI that should be measured and used as adequate indicators (which might be classified into different categories, namely social, economic, environmental, political, and cultural). This would imply that different evaluation dimensions would have to be included in the proposed metrics framework.

The barriers identified in this section are a first attempt to suggest policy recommendations related to challenges faced by the academy and organizations towards developing methodologies and frameworks for measuring the social impact of SI.

CONCLUSIONS

This research has analyzed the challenges posed by measuring the impact of SI initiatives or practices and how these measurements may potentially change the assessment process. Despite being at an initial stage of ongoing research, by considering the existing studies on social impact measurement of SI, this research contributes to an important public policy debate regarding the effective use of SI initiatives and projects to promote inclusive economies and societies.

The results confirm that methodologies to measure the social impact of SI have been developed, mainly in Europe. Germany and Belgium are countries where these initiatives are largely addressed. Regions such as Africa, South America, and Oceania have a long path to go in developing research in this field, as confirmed by the difficulties in finding outputs from research in these regions. It could be considered a signal of the need for both the development of works considering the social impact of SI initiatives and assurance of information on this ground. The analysis can also help advance knowledge on the type of publications and approaches used in the current literature by summarizing the existing results. These results showed that the kind of publication is mainly related to scientific articles and reports from public agencies, in a few cases from research projects supported also by public agencies. In particular, the analysis shows that the approach used by these publications is mainly quantitative and based on indicators.

The literature review confirms the lack of SI methodologies, frameworks, and tools capable of measuring the social impacts of SI. Furthermore, this research shows that few studies have been undertaken to address this issue (as previously mentioned, examples are Dhondt, 2016; Cunha & Benneworth, 2020; Dainienė & Dagilienė, 2015; Lazzarini, 2018; Krlev et al., 2014). Also, it is important to highlight that the authors have been working on a model based on indicators to support practitioners in assessing the impacts of SI initiatives. In this research, the reviewed and identified challenges to develop social impact measures for SI presented here can be considered essential steps in developing the following stages of the proposed model. It can help managers, researchers, and policymakers better understand the actual scenario of the existing social impact measures for the SI process, as well as the barriers to be faced and overcome.

In sum, this paper sheds further light on the need for more practical methodologies, frameworks, and tools to assess the social impact of SI. These new approaches can strengthen socially innovative initiatives and practices, providing public service authorities with tools better suited to design social policies that promote inclusive economies and societies.

Despite an overview of the existing social impact measures for SI, based on a thorough review of reports and published academic literature dealing with SI topics, which has been presented in this study, additional research focusing on indicators to measure the social impact of SI is still needed. The results can be used to channel better upcoming academic research on developing social impact measures for SI. Consequently, future research

on selecting criteria and indicators to develop standard methodologies and frameworks about SI impact will enable researchers, organizations, and policymakers to improve future methods in this field. A limitation of this research is that the data collected are based on the limited available literature due to works developed in this subject area of social impact measures still being scarce. This leads to a recommendation to investigate precisely a greater in-depth analysis of indicators for the social impact of SI.

This research identified major opportunities and limitations. The opportunities demonstrate that although the discussion around SI has been growing over recent years, there is a clear gap in the literature regarding how to measure the social impact of SI. This research has provided an overview of methodologies, tools, or frameworks to assess the social implications of SI and to support different stakeholders to better understand the actual scenario concerning this pressing research topic. Nonetheless, when developing the work, some limitations were found. Firstly, one of this research's main limitations is defining a methodology that could only analyze SI tools. Secondly, it is difficult to find scientific papers or practical research specifically focused on developing indicators or even metrics for SI initiatives or projects since most of the available literature discussing this topic has been focused on the difficulties of identifying those indicators/metrics. Thirdly, researchers face barriers to developing methodologies and frameworks aiming to assess the social impact of SI initiatives.

Initiatives in the context of SI have been increasingly important over the years. Despite this standing importance, the impact of those initiatives remains an unexplored box, which configures many possibilities for future research. Following this gap, the authors aim to keep digging and developing research in this area. The following steps for this work will focus on the development and testing with experts the model to assess the impact of SI initiatives, then deliver the model to researchers, governments, and practitioners to be tested and used in a real scenario, and at the same time support the development of future SI initiatives in this field.

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