

Integrative Review of Non-Financial Indicators Resulting from Social Innovation in Productive Chains

Margarete Luisa Arbuseri^{a*}, Maria Emilia Camargo^b, António Jorge Fernandes^c,
Maria Elizabeth Pereira^d, Isadora Arbuseri Menegotto^e, Beatriz Lúcia Salvador
Bizotto^f

^{a,b,e} *Postgraduate Program in Administration, Caxias do Sul University, Caxias do Sul, Brazil*

^{c,d} *Postgraduate Program DEGEIT, Aveiro University, Aveiro, Portugal*

^f *Postgraduate Program in Administration, UNIFACVEST Univerisy Center, Lages, Brazil*

^a *Email: margaretearbuseri@hotmail.com, ^b Email: mariaemiliappga@gmail.com, ^c Email: afer@ua.pt*

^d *Email: melisa@ua.pt, ^e Email: isadoraarbuseri@gmail.com, ^f Email: beatrizlucibizotto@gmail.com*

Abstract

In the literature there is no consensus on the definition of social innovation, its dimensions and causal relationships. The development of indicators becomes complex because the empirical research activity confronts concepts that differ paradoxically from metrics. This work contributes to discussion by offering an integrative review of non-financial indicators applied to productive chains with the objective of measuring social innovation activities, at the level of their links. The method used in the research was the integrative review in the periodicals Web of Science and Crossref databases, from June 2017 to June 2018. The main findings are that the models analyzed promote the organizational level as the appropriate level to measure social innovation activities. Despite these limitations, this work contributes to the field of measuring social innovation in three areas: (a) modeling a system (b) offering a mapping of organizational competencies and (c) based on this mapping, the model contributes to the Conception of specific incentives for the development of organizational competencies for the promotion of social innovations. The need to conceptually and empirically test the model in different socioeconomic environments to stabilize a social innovation monitor was observed.

.Key words: Integrative review; Social Innovation; Non-financial indicators; Social Innovation Measurement Models; Indicators for productive chains.

* Corresponding author.

1. Introduction

The scenario that was established from the 1980s and 1990s, which impacted the improvement of processes and the search for quality through continuous improvement, also brought reflections on the systems of measurement and performance evaluation [1]. Reference [2] highlights that the first advantage of using non-financial indicators for performance evaluation is that they explain or attempt to explain certain relationships or situations that are not evidenced in financial statements. The second advantage pointed out by the author is that these indicators reveal the difficulty of traditional accounting in adapting to the challenges and changes in which organizations are inserted. According to [3], the advantages of using non-financial indicators are due to the fact that they act as control or incentive mechanisms, help translate the organization's strategy, facilitate the relationship with the organizational architecture, help measure the results of social innovation and can reduce the conflict of interest between directors and shareholders. This paper contributes to this discussion by offering a review of the conceptual model of non-financial indicators with the objective of measuring social innovation activities at the level of productive chains. The article discusses the concept of social innovation as an epistemic intervention that tries to explain the relationship between social problems, social innovation and the capacity to absorb knowledge at the organizational level. After it presents an exploratory model and its dimensions for the development of indicators of social innovation at the level of productive chains.

2. Theoretical Reference

To give meaning to the global crisis and a possible transition, many reinterpret the past as a set of successive long-term development cycles that could be repeated in the future. At the same time, environmental pressures have resulted in the notion of a green economy. It is argued that the current global economic crisis simultaneously marks the end of the long-term post-World War II development cycle, the midpoint of the information age and potentially the beginning of a new era of sustainable development [4]. To this end, organizations, production chains, rethink the way they innovate, as well as seek to interact, co-create with all the links in the main production chain, as well as to assist. Innovations permeate from technological to social innovation [1]. We conceptualize social innovations as new social practices, comprising new ideas, models, rules, social relations and/or services. In doing so, we follow Franz and his colleagues [5] who argue that the "decisive characteristic of social innovation" lies in the "fact that people do things differently, alone or together. What changes with social innovation is the social practice, the way people decide, act and behave, alone or together" [5, 6]. These changing social practices include changing roles, relationships, norms and values. Reference [6] define social innovation as "a new combination and/or configuration of social practices in certain areas of action or social contexts requested by certain actors or constellations of actors in an intentional and targeted manner with the aim of satisfying or responding better to needs and problems than is possible on the basis of practices [7]. The Open Book of Social Innovations [8] in which sets of ideas and goals that drive and motivate social innovation are characterized as "generative". The changes can be considered as co-evolution with new "paradigms" in, for example, the economy. Social innovation is an innovative approach to examining new social problems that have emerged in contemporary societies [9]. This imprecision and flexibility have consequences when defining a system of indicators that allow to reflect and explain empirical phenomena related to social innovation [10]. This also relates to the role of "social movements" and "counter-movements"

[11]. A (counter) social movement, such as the environmental movement or the anti-globalization movement, can be experienced as "change" that co-evolves with the development of a new paradigm of how society deals with the environment or how society approaches the processes of globalization. These social movements "fight against pre-existing cultural and institutional interests, and the structures of meaning and power they transmit" [12], which "modify existing beliefs and symbols and their resonance comes from their appeal to the values and expectations that people already possess.

2.1 Social Innovations

Social innovations have been defined as the third way to solve market or state failures or both integrate social groups in certain dynamics considered as welfare standards [9]. When integration and welfare mechanisms fail, there are situations that are problematized as unsatisfied social demands [9]. This particular problem is able to mobilize in many cases a set of resources (creative, financial, organizational, technological, political and cultural) structured as social innovations. From this point of view, social innovations are considered as new products, processes and methods that, in a creative and sustainable way, offer a better solution to one or several social demands [13]. Thus, social innovations imply changes in the social practices of a particular social system [14].

2.2 Absorptive Capacity

The capacity to absorb knowledge is a relational concept that defines the abilities of organizations to identify, assimilate, transform and exploit external knowledge based on accumulated internal knowledge [15]. Absorption capacity expresses a set of organizational skills and capabilities related to the development of innovations [16]. The concept of absorption capacity is related to an epistemic perspective of social innovation according to which the process of innovation is the result of a complex process of codification of knowledge [17]. It is a recursive process, according to Cohen and Levinthal [18] of knowledge based on accumulated knowledge. As a recursive and accumulative process, the codification of knowledge is not separated from its codification conditions, that is to say, it is a social, temporary and spatially localized process [19], therefore, it expresses a unique and hardly imitative learning path, that is, an innovation. Social problems are complex and difficult to solve and express unsatisfied social needs. An unsatisfied social need must be structured in a social demand to have the status of a social problem, that is, a process by which an epistemic-political operation is generated in which a social problem is presented as a "causal hypothesis". The causal hypothesis seeks to elucidate and specify the main cause of a problem and, therefore, its solution options. It is an epistemic process (arguments, evidence, data, etc.) that tries to explain (causally) the dynamics of a socially problematic process and the variables associated with it. The causal hypothesis operates by reduction (simplification) identifying the main causes that generate or make the social problem in order to make it manageable. On the other hand, it is a political process (ideological option for preferred solutions) whose process is structured around the development of different types of partnerships (governance: social cooperation and participation) sustained by a combination of resources (creative, financial, political and organizational ...) to create a sustainable solution (partial or total). From this point of view, Reference [20], approach the concept of knowledge absorption capacity provides an understanding of the process by which an organization identifies a social problem (causes, effects, etc.),

assimilates it (according to its internal knowledge standard), explores solutions (prototypes, products, services and methods) and implements or explores them (projects, governance and innovation impact assessment). Therefore, the analysis of how organizations develop social innovations (they codify social practices) always suggests a level of knowledge absorption capacity that acts on social problems as an epistemic-political intervention in which social demands (collective problems) and their possible solutions (social innovations) are formalized.

2.3 Measuring Social Innovation

Public policy formulation is increasingly concerned with social problems and their consequences. In this context, there is a demand to measure and evaluate social innovation processes in a comparable way that not only allows an understanding of the dynamics of social change and its solutions, but also to support informed decision-making based on social governance (civic participation) [20]. Despite this strong demand from policy-making institutions, the development of innovation indicators is still a pending task. This is because there is still no broad consensus on what social innovation is, what are its determining factors, what are the most appropriate methodologies to measure and evaluate social innovation and what metrics to use for this purpose. Despite these limitations, there are some suggestions and measurement experiences that are offered by the different approaches and perspectives on social innovation, namely: the individualistic approach, the organizational approach and the regional / national approach [20].

2.3.1 The Individualistic Approach

In literature, authors understand social entrepreneurship as a dimension of social innovation [21, 22]. In this sense, studies favor the development of social innovation indicators associated with the evaluation of characteristics, motivations and contexts in which social entrepreneurs develop their activities. This work focuses both on case studies and comparative analysis at the international level based on Global Entrepreneurship Monitor [23, 24].

2.3.2 The Organizational Approach

Unlike the individualistic view, this approach favors organizations as a field of understanding and evaluation of social innovations [14]. In this context, studies on hybridization and social innovation (hybrid structures between companies and the public sector), which highlight the emergence and governance of new business models aimed at social interests and purposes, are highlighted [25, 26] Within the organizational approach, studies, which highlight the development of organizational capabilities for social innovation, also develop a model based on the absorption capacity of organizations. The model proposed by SINNERGIAK [27] offers a system of indicators that allows differentiation between potential and concrete capacity for social innovation in four types of regional organizations: companies, universities and technology centers, exploring the characteristics of social innovation projects developed by these organizations and discussing the results obtained at regional and organizational level [27].

2.3.4 The Regional / National Approach

There is an important movement in social innovation promoted by European policy makers, which requires the development of social innovation indicators at macro (regional / national) level that integrate data from different European statistical sources to obtain a set of comparable and agreeable indicators [28]. In this line, the European Project TEPSIE (Theoretical, Political Foundations for Building Social Innovation in Europe) has developed an integrated model to measure social innovation. The model specifies three levels of measurement: (a) structure conditions; (b) entrepreneurial activity; (c) field-specific output and results; and discusses the results obtained with the measurement of social innovation [28].

2.4 Limits And Options

The individualistic approach (social entrepreneurs / social innovators) is insufficient to explain the dynamics of social innovation, considering that the complexity of social problems requires the active participation of a multiplicity of actors (organizations and public administrations) for the development of social innovations [29]. The regional / national approach based on macro and comparable indicators only measures what "can" measure, but does not measure what "should" measure. This is due to the fact that macro indicators are the result of research and collection of information that does not refer to social innovation. Similarly constructed indicators can provide a generic approach to the context conditions in which social innovations occur but do not measure social innovations themselves. The organizational approach is located between the individualistic approach and the regional/national approach. Organizations are intermediate structures between individuals and their contexts. [30]. They are social structures (CAJAIBA-SANTANA [29] and networks of resources and knowledge [31]. Innovation is an interactive and multidisciplinary process that involves the collaboration of a growing network of stakeholders (OECD, 2010) [32], not delineated within a single organization, but developed among several sectors. For Pol e Ville [33], one of the outstanding characteristics of our society is the incessant search for the creation, adoption and diffusion of innovations, whether business, artistic or social innovations [1]. Mulgan and his colleagues [34] outline some phases through which social innovations pass in a macro perspective. It is observed that the initiative for a social innovation arises from social demands (EDWARDS-SCHACHTER; MATTI; ALCÁNTARA [35], and that the effort to bring the actors together is much more intense due to the greater number of components and the complexity of forming and organizing the network [36]. Rollin and Vicent [37], for their part, add the necessary capacities of the actors involved and the result of the social innovation process. Reference [37] model, it is observed that, at the end of the process, new values, new skills or new knowledge, or all of them, may result, depending on the level of approach and depth of the actors. The following section presents a description of [37] adapted model for measuring social innovation under the premise that the organizational level is the appropriate one to measure social innovation, its conditions, its impact and its governance. Thus, in the social innovation cycle, the following capabilities are activated: (a) Acquisition of external knowledge, i.e., capabilities to identify and interpret social problems, to monitor social dynamics and access a diversity of sources of ideas and knowledge; (b) Development of social innovations, i.e., capabilities to combine and implement knowledge in the development of new products, processes or methods aimed at problem solving and social inclusion; (c) interpretation of the impact of social innovation, i.e. an assessment of the diversity of social impact (impact on the target population), the diversity of organizational

impact (organizational learning derived from the implementation of a social innovation) and diversity of sectoral impact (effects of social innovation in various sectors such as health, education, etc.); (d) Governance, i.e. capabilities for the inclusive development of social innovations. Governance expresses mechanisms of inclusion and participation of the target population of social innovation (social governance), strategic partners (inter-organizational governance) and sustainability of social innovations (sustainable governance) [10].

3. Methodological Procedures

According to [38], all sciences are characterized by the use of scientific methods. In general, the method is a set of systematic and rational activities that, with greater security and economy, allows the achievement of the goal - valid and true knowledge, tracing the path to be followed, detecting errors and helping decisions. This way, the model highlights the concept of epistemic intervention for the development of social innovations. Thus, at the organizational frontier, interactions with the organization's social environment are created, that is, the interpretation and assimilation of social problems to structure them into a demand (causal hypothesis) that can be addressed by a social innovation [39]. According to [2013, p. 43, p. 189]. [40], "we call a systematic review the research and critical evaluation of evidence-based work results. This review employs a specific protocol to determine the studies that will be part of it (a qualitative analysis is done)". For [41], the review articles are works published by the greatest specialists in a given area, who seek to carefully evaluate the set of research produced and its separation. For Procianoy [40] "the objective of meta-analysis is to integrate the results of individual studies (considered combinable) to provide an estimate of results [...]" and that "due to its characteristic, meta-analysis allows to reduce costs and time in the realization of additional research, as well as to seek better evidence in the face of studies with contradictory or inconclusive results (studies with small samples)". Reference [42] classify review articles into four types: systematic review, meta-analysis, qualitative review and integrative review. This study used integrative revision, where, according to [42] a summary of the literature is sought, in a specific concept, in a content area, where the research is summarized (summarized), analyzed and the total conclusions are extracted. Reference [42], propose a protocol for the development of an integrative review article of six stages: 1. Identification of the theme and selection of the research question; 2. Establishment of inclusion and exclusion criteria; 3. Identification of pre-selected and selected studies; 4. Categorization of selected studies; 5. Analysis and interpretation of results; and 6. Presentation of the review / synthesis of knowledge. This study was carried out according to the steps proposed by [42], where the main findings were transposed into the theoretical framework that will serve as input for the next stage of this study. Within the study, the following operational definition of social innovation was used: "Practical application of ideas for the development of new and improved products, processes, methods and/or services, for the resolution of social problems structured as unsatisfied social demands in the areas of education, health, employment, culture, environment and/or social services [27]. The analysis unit of the study is the productive chains. The information unit to gather data on non-financial indicators for measuring social innovation was through research by social innovation projects conducted between 2000 and 2015. In this research, the integrative review, had the purpose of reviewing methods, theories, and/or empirical studies on a particular topic, non-financial indicators through social innovation. For this purpose the key words were used: social innovation, indicators of social innovation, measurement of social innovation, variables of social innovation indicators and studies on the measurement of social innovation, measurement of non-financial indicators through social innovation. The

survey was conducted from June 2017 to June 2018, using the Web of Science and Crossref databases. The important gap between the potential and capacity realized for social innovation, both at the regional level and in the case of all agents, is highlighted. This distance suggests that there is much room for the development of social innovations in the actors of the productive chains.

4. Presentation and Analysis of Results

Social innovation is a quasi-concept and there are no agreements on its definition, dimensions, effects and causal relationships that explain the processes and impacts of social innovation (European Commission, 2010) [9]. The lack of a common framework has consequences for the development of indicators. Indicators are not numbers, but concepts and an indicator system is, by definition, a conceptual system. It was observed that the concept of social innovation has a connotation as an epistemic intervention. From this point of view, the concept of knowledge absorption capacity is appropriate to explain and measure social innovation as a process of interpretation, assimilation, combination and exploitation of knowledge applied to the creation of new products, processes, methods or services to meet unsatisfied social demands. Finally, the model conceptualizes social innovation in four main dimensions: knowledge acquisition (exploration), innovation development (exploration), impact assessment (evaluation) and social innovation governance (participation and cooperation). The analyzed models promote the organizational level as the appropriate level to measure social innovation activities. The individualistic approach (social entrepreneurs) is insufficient to explore the variety of social innovation actors. In turn, the construction of indicators from secondary sources is also inadequate, since these models and indicators measure what they can and not what they should measure. Based on the studies carried out, it becomes important to develop a set of non-financial indicators that can represent the performance of the chain. Another important element that the indicators can contribute is to the governance of the chain. Social innovation activities can include the identification of opportunities and the generation of ideas for the implementation of new practices and the escalation of creative solutions. Most non-financial indicators have the ability to transmit information more easily, for all links of the productive chains, dare be, from the link of products to the link of consumers. Customer satisfaction and retention is an indicator of the strategies used in chain links. This non-financial vision gains strength when aligned with a financial measure, which is the case of the increase in sales revenue.

5. Final Considerations

The research needs further deepening based on comparative analyses in various social and territorial contexts in order to measure the sensitivity of factors and dimensions to changing contexts. Despite these limits, this work contributes to the field of measuring social innovation in three areas: (a) Modeling a system of social innovation indicators based on a concept established in the academic and institutional literature, such as the concept of absorption capacity, (b) offers a mapping of organizational competencies for social innovation, since it allows observing the importance of each factor per type of organization and for each organization researched, (c) based on this mapping, the model contributes to the Design of specific incentives for the development of organizational competencies for the promotion of social innovations. The need to conceptually and empirically test the model in different socioeconomic environments (cities and regions) to stabilize a social innovation

monitor was observed.

5.1 Recommendation for future work

- Analyze the set of indicators that form the social innovation construct, using as antecedent constructs the absorptive capacity and the dynamic capacities, through a quantitative study.
- Test a model empirically in different socioeconomic environments to monitor social innovation.

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