# Social innovation for sustainable development: assessing current trends

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# Social innovation for sustainable development: assessing current trends


## Abstract

Innovation is believed to be a key driver of societal and economic well being.In many cases, it has also led to changes towards more sustainable lifestyles, and to more efficient use of natural resources. But despite the relevance of innovation as a tool to support sustainable development, there is a need for research which analyses current trends in order to guide future efforts.

The paper addresses this research need. It examines existing methods and tools for fostering social innovation on matters related to sustainable development, within the framework of the SDGs. By means of an online survey undertaken among sustainability and innovation experts in a sample of industralised and developing nations, some of the means via which social innovation is being pursued, its applications and limitations have been identified. A number of case studies showing example of sustainable innovation have been mapped to demonstrate its usefulness. A causal loop diagram, which links the factors associated with social innovation in the context of the UN Sustainable Development Goals, is also presented, offering a greater undertanding of their interconnections. The paper concludes by outlining some measures which may help to take better advantage of the many opportunities offered by social innovation, in putting the principles of sustainable development into practice.

**Keywords**: social innovation, sustainable development, survey, SDGs, barriers, case studies

**Highlights**: Progressive integration of social, environmental and economic aspects in the area of innovation for sustainable development

Analysis of case studies in a sample of 36 industrialized and less developed countries

More emphasis on innovation mechanisms through civil society and social entrepreneurship activities

Underlying nexus describing of social innovation and the promotion of sustainable development/SDGs.

## 1. Introduction

In the literature, the discussion on the definition of innovation concerns originality (an idea new to the world or imitated, but new to an organisation), the scope (product and business process innovation) as well as its relevance to technological, economic or social spheres. The concept of innovation was introduced to scientific literature by Joseph Schumpeter (1939), who defined it as the first application of a given solution, i.e. the introduction of new products, processes, technologies, resources, and a new combination of production factors. These revolutionary new ideas emerge as a result of a creative destruction, which could disrupt the existing state of economic equilibrium and boost economic development (Schumpeter, 1934; 1939). The Schumpeterian

approach has been widely accepted in the literature, however, the concept of innovation has evolved, and new definitions emerged.

Percy Ronald Whitfield promoted a broad definition of innovation and argued that innovation is a series of complex actions related to solving problems, which result in the creation of a comprehensively developed novelty (Whitfield, 1975). Such an approach was also supported by Philip Kotler and Everett Rogers, who claimed that innovation is any product, service or idea perceived by an individual as new (Kotler, 2000, p. 355; Rogers, 2003, p. 12).

A narrow definition of innovation was proposed by Christopher Freeman, who similarly to Schumpeter, defined innovation as the first commercial use of a new product, system, device or process (Freeman, 1982, p. 57). The concept of innovation was expanded by Peter Drucker, who not only claimed to treat all novelties as innovations (including finding new users for an already existing product), but also noted that innovation can refer to social phenomena. In his opinion, economic and social innovations are as valuable as technological innovations (Drucker, 1993, 2004). With this in mind, Michael Porter analysed innovation from both perspectives - technical and social - and linked innovation with gaining competitive advantage by states and enterprises (Porter, 2008). Innovation can be analysed from various perspectives with regards to their outcomes and impacts. These include the business sector, the general government sector, non-profit institutions, households and individuals, with the business sector being the most common one (OECD, 2018).

Innovation drives economic development, but socio-economic relevance of innovations depends on their diffusion and uptake (Ziegler, 2017; OECD, 2018, p. 44). By definition, innovation does not need to be beneficial for the firm or bring a positive value for society. It can lead to better financial performance, improvements in market position of a company, sales increases, benefits to customers. It can also solve environmental, safety or health problems, which may not increase firm's sales but will bring benefit for users (OECD, 2018, p. 69). Thus, innovation should not only be perceived looking at its outputs and outcomes, but also can be seen in the context of the accompanying social processes (Ziegler, 2017, p. 2).

Due to contemporary trends related to citizens' engagement in innovation, co-creation, and co-production, the focus of innovation solutions shifted to both cutting edge technologies and solving social problems. Therefore, social innovation has received a growing interest during the last decade (Cajaiba-Santana, 2014; Voorberg et al., 2015; van der Have, Rubalcaba, 2016; Yan et al. 2019; Foroudi et al., 2020). In principle, social innovations aim to improve welfare of communities or individuals (Young Foundation, 2012; Mulgan et al., 2013). These are also seen as new approaches to dealing with a problem or addressing a social need (Nicholls, Dees, 2015), new, goal-oriented social practices aimed at stimulating the macro-quality of life (Periac et al., 2018), innovations that meet yet unmet social needs and create new models of social relations and cooperation (Manzini, 2015), as well as products and services, which facilitate the development of more sustainable, cohesive and inclusive societies (Grimm et al., 2013). Social innovations are also considered as a suitable way to solve

challenging problems faced by contemporary society (Eichler, Schwarz, 2019; Cuntz et al., 2020).

Since the definitions allow for broad interpretation of social innovations, there is a need to research and describe the means via which social innovation is being pursued, its applications and limitations in order to characterise current trends and guide future efforts. This research aimed to explore social innovation practices by carrying out a on survey and collecting a sample of case studied from 36 countries.

This paper is organized as follows. Section 2 shows an overall recognition on the concept of social innovation in a sustainable perspective. Section 3 describes applied research methods and the analysed sources. The findings are discussed in Section 4. Finally, Section 5 highlights some final remarks including contributions and limitations of this analysis as well as further developments for future research.

## 2. Innovation in a sustainable development context

Change is a crucial element for organisations, communities, and stakeholder networks to progress towards sustainable development (Silvestre & Ţîrcă, 2019). Sustainability trajectories are the specific paths that organisations, communities and stakeholder networks take to change and progress towards sustainable development (Silvestre, 2015). Sustainability trajectories are defined by contextual, historical aspects and related decisions made by groups and individuals (Martin & Sunley, 2006). Therefore, contextual and historical aspects

are crucial for the implementation and study of innovations for sustainable development (Silvestre & Ţîrcă, 2019). The academic literature helps in the understanding of these contextual and historical aspects.

One of the most recent and perhaps comprehensive literature reviews focused on innovation for sustainable development suggests that they are three key periods in the literature and each period is characterised by specific keywords (Vatananan-Thesenvitz et al., 2019):

1. 1985 to 2005, keywords: *industrial ecology*, *sustainable cities,* and *city planning*.
2. 2005 to 2012, keywords: *environmental management*, *cleaner production*, *competitiveness*, *corporate social responsibility*, and *eco-efficiency*
3. 2012 to 2018, keywords: *Sustainable Development Goals*, *Eco-Innovation*, *Social-Innovation*, *CSR,* and *Entrepreneurship*

The three periods show a shift from cities and industry, to environmental management and social responsibility, to sustainable development. This progression shows a progressive integration of social, environmental and economic aspects in the area of innovation for sustainable development.

The top 5 countries by total publications of academic production are: the United Kingdom, China, United States, Netherlands, Germany (Vatananan-Thesenvitz et al., 2019). Also, there is evidence of collaborative research between different countries, especially between the top countries with more publications

(Vatananan-Thesenvitz et al., 2019). These characteristics of the literature suggest that the innovation for sustainable development literature has been mainly published by authors based in industrialised and developed countries.

The diversity of publications and journals where innovation in sustainable development is published shows the different facets of this topic (Vatananan-Thesenvitz et al., 2019). The topic is focused on areas such as sustainability, business and management, education management, management and strategy, as well as innovation and natural science (Vatananan-Thesenvitz et al., 2019). The top types of journals for innovation in sustainable development are journals in the general business and management field and journals in the ecology and environment sector as well as in general energy consumption, followed by journals around education and sustainability; and technology and research policy journals. Most papers are written in the sustainable development business context (Vatananan-Thesenvitz et al., 2019).

The most co-occurring keywords in journal articles focused on innovation for sustainable development are planning, education, environmental protection, environmental management, economics, decision making, economic growth, and climate change (Vatananan-Thesenvitz et al., 2019). These keywords represent the conceptual space of innovation for sustainable development in the academic literature (Vatananan-Thesenvitz et al., 2019). The high co-occurrence of the keyword planning shows the importance of this concept in innovation (Vatananan-Thesenvitz et al., 2019). Therefore, the aspects of the literature discussed above show the emphasis of research with an environmental and economic focus in the context of organisations. Furthermore, suggesting that the

focus on social innovation and less formal communities could be developed further in the literature.

In order to yield the expected benefits, innovation requires a willingness from staff, senior management and communities as well as mindset changes and planning to be implemented (Silvestre & Ţîrcă, 2019). The UN has recognised that delivery of sustainable development relies on social innovation (Millard, 2018). The academic literature has focused mainly on the technological rather than people orientated innovations in the context of sustainable development (Adams et al, 2016). In addition, the main SDG focused on innovation, SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (UN, 2015) has a strong technological focus. However, the literature focused on innovation for sustainable development has recently started to shift its focus towards socio-technical lenses (Adams et al, 2016). These lenses provide a more people-centred perspective.

Moreover, innovations have been traditionally driven by economic rather than social and environmental considerations (Silvestre & Ţîrcă, 2019). Social innovations have as primary focus the societal aspects, whereas green innovations focus primarily on the environment (Silvestre & Ţîrcă, 2019). An innovation for sustainable development requires the social, environmental and economic dimensions to be considered simultaneously and in balance (Silvestre & Ţîrcă, 2019).

Innovations for sustainable development have also been conceptualised as sustainability-oriented innovation (e.g., Altenburg & Pegels, 2012; Adams et al., 2016; Goodman et al., 2017).

> Sustainability-oriented innovation involves making intentional changes to an organization's philosophy and values, as well as to its products, processes or practices to serve the specific purpose of creating and realizing social and environmental value in addition to economic returns. (Adams et al, 2016; p1)

As well as the balance between societal, environmental and economic considerations, sustainability-orientated innovations can have an impact within and beyond organisations (Adams et al, 2016). Within organisations, it is possible to find stand-alone innovative interventions for sustainable development (Abernathy & Utterback, 1978; Adams et al, 2016). This can take place within specific teams, departments, functions, products or services. However, recently innovation for sustainable development is becoming a more strategic aspect in organisations (OECD 2009). The more strategic approach can become integrated throughout organisations for instance through environmental management systems (Adams et al, 2016). These can aid behaviour change and transformational processes towards sustainable development (Adams et al, 2016). Figure 1 introduces some of the dimensions of social innovation for sustainable development, which illustrate the complexity of this topic.

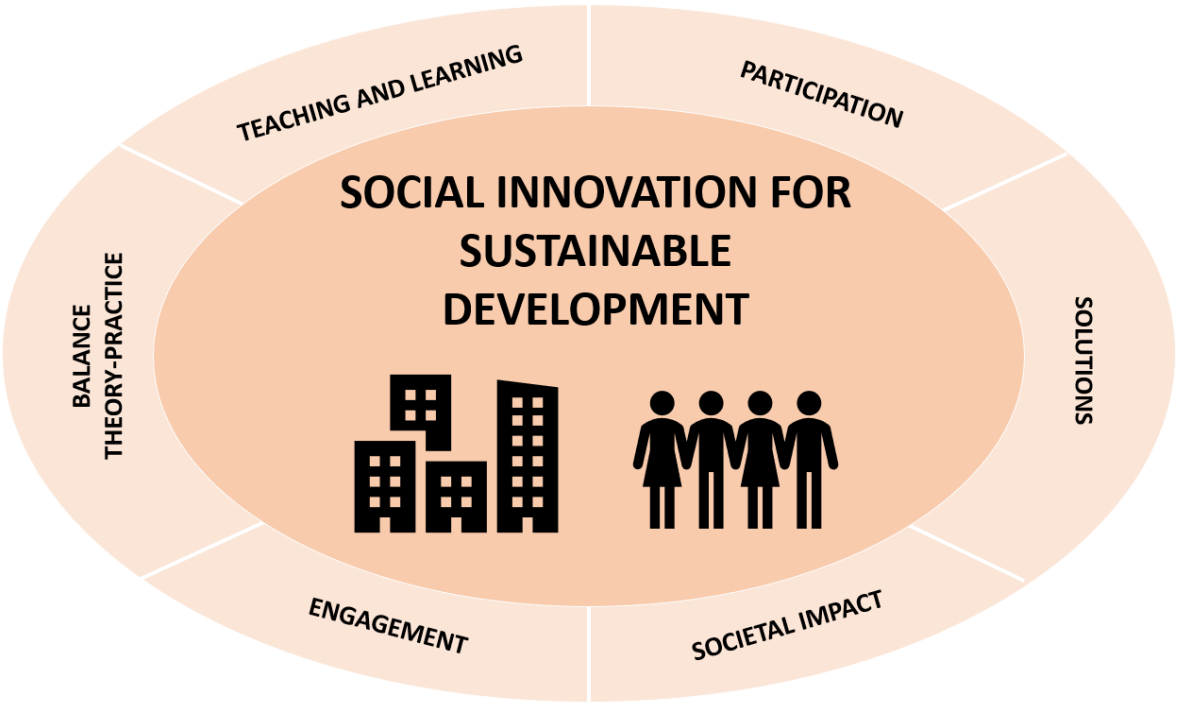


Figure 1- Some of the dimensions of social innovation for sustainable development

Source: the authors

Another dimension of how innovation for sustainable development relates to an organisation's view of itself as embedded within a network of other actors or if the organisation tends to act focusing on itself (Adams et al, 2016). When innovation for sustainable development is orientated mainly inwards it is referred as insular (Adams et al, 2016). On the contrary, if an organisation is working on innovation for sustainable development in a systemic way, the organisation will try to positively affect social, environmental and economic systems beyond its organisational boundaries (Adams et al, 2016). Organisations can therefore contribute towards sustainable development through systems building innovation

beyond their regions and countries. For instance, the concept of social innovation is starting to be used both in the context of sustainable development both in developing and developed countries (Millard, 2018).

The engagement between different actors in respect of innovation for sustainable development has been conceptualised in the literature through the ‘triple helix’ model. The ‘triple helix’ model of innovation includes three interconnected sources of innovation: government, the private sector and research institutions (Millard, 2018). The ‘triple helix’ explicitly acknowledges the importance of knowledge production through academia (Carayannis et al, 2012). Due to this some argue that it is compatible with the knowledge economy (Carayannis et al, 2012). Therefore, the model has been developed to include civil society and is called ‘the quadruple helix’ (Millard, 2018). The ‘quadruple helix’ highlights the need for an integrated development of knowledge economy and knowledge society in the context of sustainable development (Carayannis et al, 2012). Civil society as a source of innovation in the model has been emerging in parallel with the development in academic discourse and use in policy frameworks of the concept of social innovation (Millard, 2018). The most recent iteration of the innovation model is the ‘quintuple helix’ (Carayannis et al, 2012). The ‘quintuple helix’ includes biological and ecological systems as another source of innovation in the model (Carayannis et al, 2012). This model thus includes the socio ecological perspective and is likely to be the most appropriate to address sustainability challenges and contribute towards sustainable development (Carayannis et al, 2012).

In conclusion, social innovation for sustainable development is an area of the literature that could be further developed. Particular areas that could be further studied include stakeholder engagement in innovation within and outside organisations and communities; the role of engagement in systems building innovation for sustainable development (i.e. society, environment and economy equally considered); and tools and methods to foster social innovation for sustainable development.

## 3. Methodology

This work aimed to examine existing methods and tools for fostering social innovation on matters related to sustainable development, within the framework of the SDGs. To address the established goal, a extend literature review followed by a cross-sectional descriptive research carried out through quantitative method approach, by the means of a survey applied to a sample of social innovation practitioners and scholars.

As stated by Fisch and Bloc (2018), a literature review is a basic component of every scientific research insofar as this is considered essential for advancing knowledge, facilitates theory development and understanding regarding specificities on mature or novel research areas. This phase provided insights about the dynamic of social innovation and its core determinants.

According to Saunders, Lewis, and Thornhill (2009) and Wiid and Diggines (2010), the purpose of descriptive research is to portray an accurate profile of

studied events or situations to describe the research domain accurately and thoroughly.

To accomplish the objective of this work, after a literature review the following four steps were undertaken to design a survey, collecting and analysing the data.

a) Design of data collection instrument: a survey was designed to identify the main initiatives employed to foster social innovation on matters related to sustainable development and its relations with the SDGs. The survey was divided into four sections, as summarized in TABLE 1. These sections covered the more important social innovation initiatives described in the literature review topics.

**Table 1- Sections of the survey**

| | |
|---|---|
| **Part 1 -respondent Background** | Composed of 5 variables related to demographic characteristics (country, age, gender, level of education, and position on respondent's university) |
| **Part 2 – involvement in social innovation** | Composed of 4 variables (role played; type of involvement; period working on social innovation; and, citizen profile of the respondent) |
| **Part 3 - Pursuing Social Innovation** | Composed of 6 variables (type of work on social innovation; the main beneficiaries; type of empowerment; outcomes; how social innovation address challenges of SD; connection with SDGs) |
| **Part 4 – Challenges and potentialities** | Composed of 3 variables (hinder elements; driver elements; interest in collaborating with a case of social innovation) |

Source: the authors

All parts also had open spaces to allow the respondent to include and assess actions/initiatives not mentioned, if desired. The designed survey was then piloted and pre-tested by a panel of co-authors, and a group of experts in social innovation to be validated. The revision after the pre-test refers mostly to changes in wording and structure organisation.

b) Data collection procedures: The survey was designed (Appendix A), and then, distributed through Google Forms, and, adopting convenience sample approach, the link was emailed to the list of members of the Inter-University Sustainable Development Research Programme (IUSDRP), (https://www.haw-hamburg.de/en/ftz-nk/programmes/iusdrp.html), composed of over 140 HEIs; also, other representatives were approached via personal contacts and by a web-search. The data was collected from September to November, 2020.
c) Data analysis: the final step comprised the analysis of the data via descriptive statistics and scientific mapping, using VOSviewer software to build and visualize networks of initiatives performed and respective subjects reported by the sampled respondents (Eck & Waltman, 2020; van Eck & Waltman, 2014)

## 4. Results and discussion

The survey collected 105 responses between September and November 2020; it was mostly answered by researchers and professors familiar with the subject. Regarding the sample characteristics, the respondents represented **36 different countries**, as shown in Figure 1. Among these, Brazil (27.62%), Italy (11.43%), Portugal (11.57%), Spain (3.81%), United Kingdom (3.81%) and Ghana (3.81%), showed to be the countries with the highest number of respondents. There was a balanced representation of developed (n=52) and developing countries (n=53) in this study.

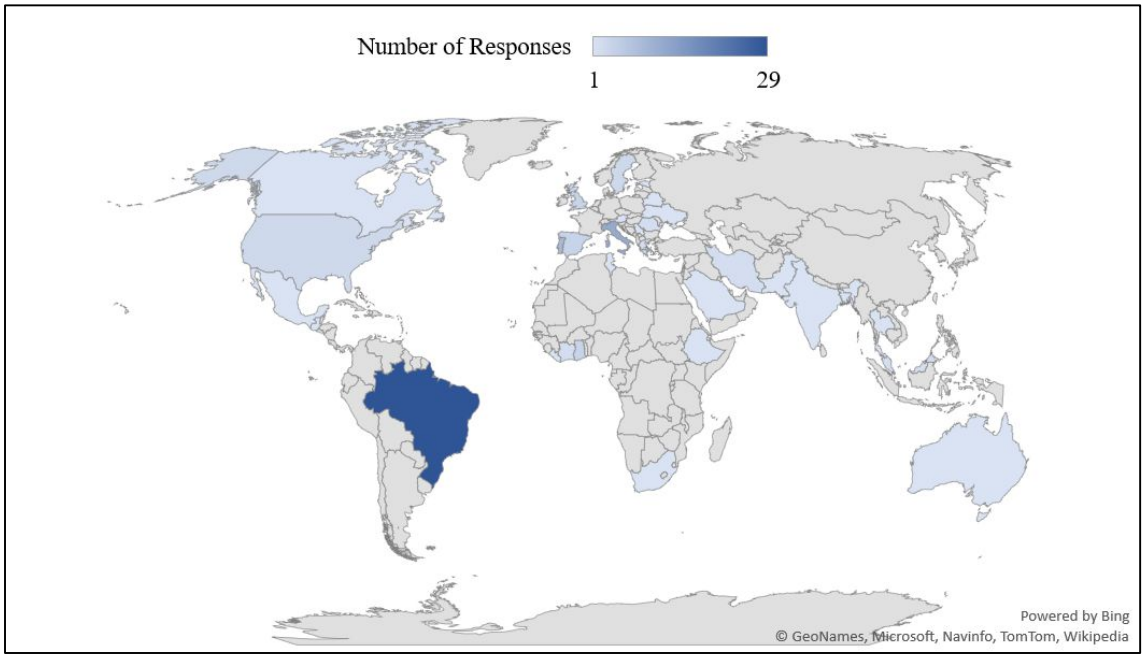


Figure 2. Characterization of the sample in terms of respondents' locations.

Regarding respondents´ age, 40% were over 50 years old, 45% were between 36 and 50 years old, 12% were between 26 and 35 years old, and 3% were between 18 and 25 years old. Additionally, 94% of the sample presented post-graduate level of education. Considering the experience in social innovation, 30%

of the sample were revealed to be working for more than five years in the topic, followed by 19% and 18% of respondents which have between 3-5 and 1-3 years of experience, respectively. Only 4% of the sample indicated to be working with social innovation for less than one year. Even though they have contact with the topic, 29% of the respondents do not work directly with social innovation.

When questioned about the role their institution plays in social innovation, the respondents could indicate more than one activity. The European School of Social Innovation assumes academia has multiple and overlapping roles in the practice of social innovation (ESSI, 2019). Most parts of the sample indicated the Supporting role (77%) and the same number of respondents indicated the Enabling and Transforming role (47%). A few respondents (3%) indicated other roles: Analysing, Criticizing, and a combination of Promoting, Orchestrating, and Coordinating. Supporting and promoting innovation are expected key roles of academia (Ankrah and Al-Tabbaa 2015), developing, for instance, participatory research to create knowledge and new possibilities for innovation (Cohen et al., 2002; Reichert 2019). Reichert (2019) mentions academia has the role of orchestrating and coordinating multi-actor innovation networks.

Almost half of the sample (44%) described their citizen profile regarding social innovation as someone who “Observes, collects, reports and analyses information”. Angelidou and Psaltoglou (2017) classified this type of citizen profile as “Sensor Citizen”, who contributes by “crowdsourcing, collecting and sharing environmental data and helping detect problems and challenges, through theoretical and empirical investigation”. Considering that most of the sample is composed of professors and researchers, it was expected the respondents would

identify this type of profile to represent them regarding social innovation. The profile who “Participates in open communities to interact with citizens” was selected by 27% of the sample. “The collaborative citizen” contributes to sustainability discussing, finding and testing solutions in open communities (Angelidou and Psaltoglou, 2017). “Entrepreneurial citizen” was assigned by 14% of the respondents, as someone who “Creates a business that makes more efficient use of resources and is socially inclusive”, 12% assigned “Offers good and/or services no longer needed”, and 3% indicated “Other” actions.

Regarding the type of innovation mechanism linked to the respondents’ work, the options were based on five broad uses of the term social innovation, according to The Young Foundation (2012): societal transformation, organisational management, social entrepreneurship, governance and capacity building, and new product, services or social development programs. The respondents were allowed to assign more than one option, and this is the reason for the sum of percentages to be higher than 100%. More than half of the sample (53%) indicated “Societal transformation”, which refers to the “role of civil society in social change and the role of the social economy and social entrepreneurs in delivering economic growth and social inclusion” (The Young Foundation, 2012). Several studies have been investigating the transformative potential of the practice of social innovation (Pel et al., 2020; Krlev et al., 2020; Wittmayer et al., 2019). Both “Organisational management” and “Governance model for decision-making” were mentioned by 36% of the sample. Considering the respondents who assigned “Societal transformation”, 34% mentioned also “Organisational management” and 32% indicated “Governance model for decision-making” as

another option. It is worth highlighting that respondents consider that, besides the transformation of society as a whole, they are promoting “changes in human, institutional and social capitals that lead business strategy”, and enabling “interrelationships between actors and their skills, competencies, assets and social capital” (The Young Foundation, 2012). The mechanisms of “New product, service or social development programs” and “Social entrepreneurship” were pointed out by 28% and 25% of the respondents, respectively. In addition to the options presented for the respondents, other two mechanisms were identified by 5% of them: “Measuring effects of social innovation”, “Encouraging innovation and knowledge transfer to provide transferable skills”, “Community capacity building”, “Civic education” and “Empowering grassroots-based communities”.

Based on Bria et al. (2015) and Hostick-Boakye (2014) studies, Angelidou and Psaltoglou (2017) identified beneficiaries of initiatives, who increased autonomy, power and influence capacity by means of social innovation: Academia/research, Business, Citizens, Foundation/charity, Grass roots organisations, Government/public sector, and Social enterprise. As presented in Figure 2, for most of the respondents (74%), the main beneficiaries of their actions/work on social innovation are represented by “Academia/research”, followed by “Citizens (community of interest/practice)” (67%) and “Government/public sector” (32%). Considering this question was multiple choice, 63% of the sample assigned both “Academia/research” and “Citizens (community of interest/practice)” as beneficiaries. Considering “Academia/research” and “Government/public sector”, 37% pinpointed both

beneficiaries, and 36% chose “Citizens (community of interest/practice)” and “Government/public sector”.

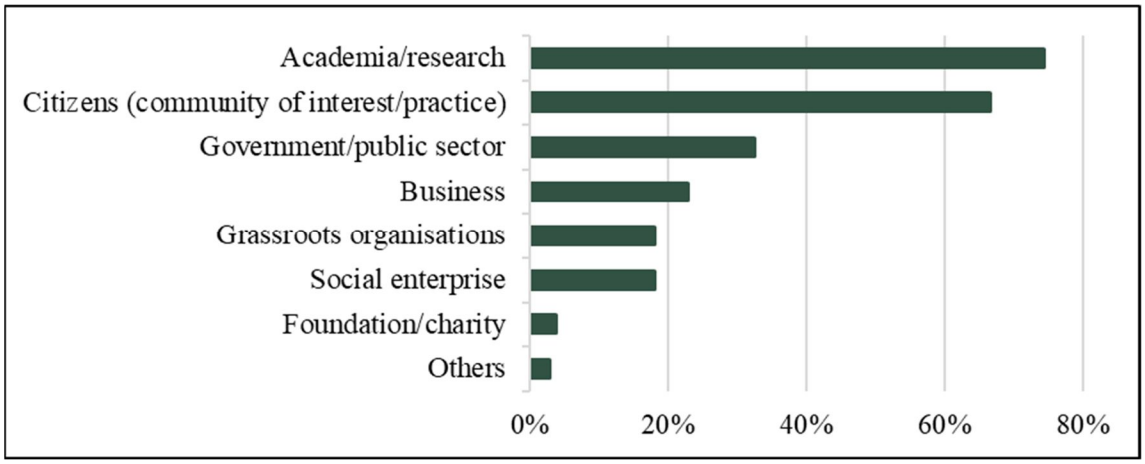


Figure 3. Main beneficiaries of respondents work on social innovation.

In relation to the empowerment generated by social innovation, most of the respondents (73%) indicated “Sharing information and resources”, which is in line with their answers about the main beneficiaries of their actions (“Academia/research”) and important for citizen engagement in social innovation (Davies and Simon, 2012). “Identifying and/or solving problems” was the second most mentioned type, indicated by 67% of the respondents, followed by “Shaping and influencing decision making and policy design”, with 46%. “A sense of possible” and “Education for Sustainable Development” were also mentioned.

These findings are aligned with the action/work social innovation outcomes, since most of respondents (68%) identified the “New knowledge/idea”; “Service” (40%), “Collaboration platform” (35%), “Process” (31%), “Social movement” (25%), and “Institutions” (23%) were also expressed. “Business

model” (16%), “Technology” (14%), “Organizational form” (14%), and Product (13%) were other social innovation outcomes mentioned; “Piece of legislation” and “raising awareness” were mentioned in the option “Others”. These responses reinforce the view of Cajaiba-Santana (2014) supporting a broader view of social innovation that does not focus exclusively on an instrumental or material view.

When asked about the social innovation content addressing sustainability challenges in respective institutions, several initiatives/applications were mentioned, being illustrated in a VOSViewer map (Figure 3; to set the map, full counting was used with 5 minimum occurrences), following the 20 subjects indicated. As it is shown in Figure 3, two clusters were established: cluster 1 comprises the subjects “Air”, “Biodiversity”, “Economy”, “Educational action”, “Energy efficiency”, “Human nature relationship”, “Nutrition security”, “Resource efficiency”, “Spur food”, “Waste collection”, and “Water pollution control”; cluster 2, encompasses the subjects “Health product”, “Human nature relationship”, “Income generation”, “Interculturality”, “Multiculturality”, “Service”, “Social protection”, “Urban life quality”, and “Vulnerable person”. Analysing these clusters, it is possible to establish that cluster 1 is more closely related to SDG 4 (Quality Education), SDG 7 (Affordable and Clean Energy), SDG 12 (Responsible Production and Consumption), SDG 15 (Life on Land), SDG 2 (Zero Hunger), SDG 6 (Clean Water and Sanitation), and SDG 3 (Good Health and Well-being), while cluster 2 is more related to SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), SDG 11 (Sustainable Cities and Communities), SDG 17 (Partnerships for the Goals) and also SDG 3 (Good Health and Well-being). Another interesting aspect in the map is that almost all

subjects are connected with each other, which discloses that many initiatives are performed in an integrated manner by institutions.

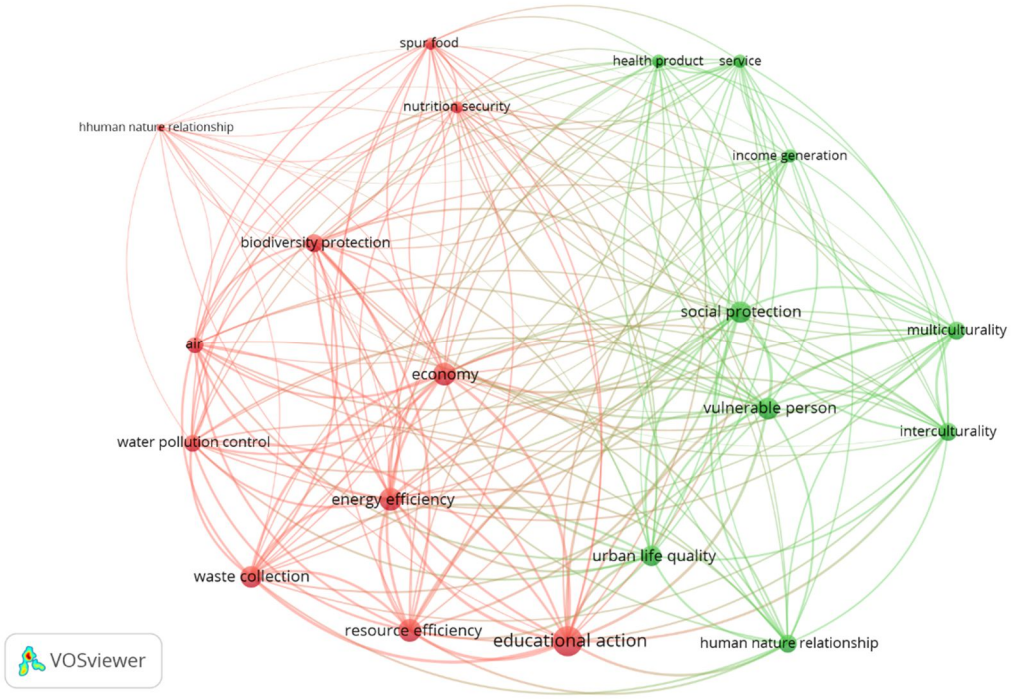


Figure 4. Spatial map of the initiatives performed and respective subjects.

Respondents were also asked whether the initiatives have connection with the SDGs. Just two responses indicated no connection, while all others indicated one or more goals, as shown in Figure 4. The Sustainable Development Goal on Quality Education (SDG 4) was the most cited one, indicated by 66% of the respondents. The second most cited goal was SDG 11 (Sustainable Cities and Communities), with 61%, followed by SDG 13 (Climate Action), with 48%, and SDG 3 (Good Health and Well-being), with 47%, while SDG 14 (Life below Water) was the goal with the least number of indications (16%). For Eichler and Schwarz

(2019), a systematic literature review indicated that the SDGs most frequently connected to social innovation are SDG 3, SDG 17 and SDG 8, so this study expands the list by highlighting quality education, sustainable cities and climate change as other important subjects in the practice of social innovation.

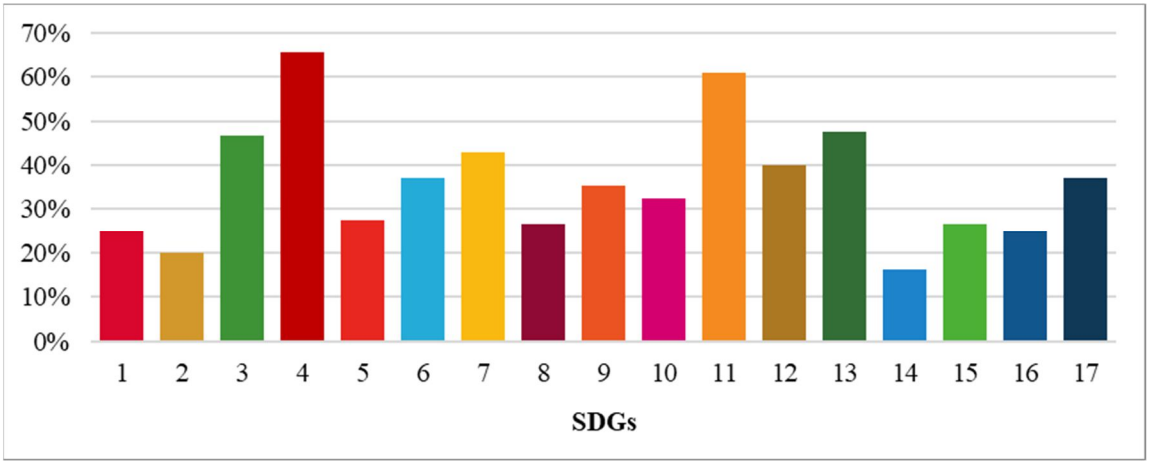


Figure 5. Number of occurrences for each SDG.

The reason for SDG 4 being the most cited goal can be easily understood, since most of the sample is composed by academics. When analysing SDG 4, it is possible to verify that besides considering the need of ensuring “inclusive and equitable quality education and promote lifelong learning opportunities for all” (UN, 2015, p. 19), this goal also considers the need of establishing Education for Sustainable Development (ESD) (UN, 2015). In this sense, SDG 4 presents a central role in 2030 Agenda, preparing new generations to work towards the other goals (UNESCO, 2017; Vladimirova and Le Blanc, 2016). Considering the cognitive, socio-emotional, and behavioural domains of learning objectives, UNESCO (2017) highlights relevant connections of these learning objectives with all SDGs.

An interesting finding about elements that hinder efforts of social innovation for sustainable development at universities (Figure 5) was that “Lack of funding/financing instruments” presented the highest rate of response (69%), which shows the need for more investments in the area. The second most indicated challenge was “Administrative and bureaucratic barriers”, with 54%, followed by “Lack of administration/political support” (52%), and “Lack of understanding about the concept of social innovation” (47%). Just 4% of the respondents indicated “No challenges” for the practice of social innovation.

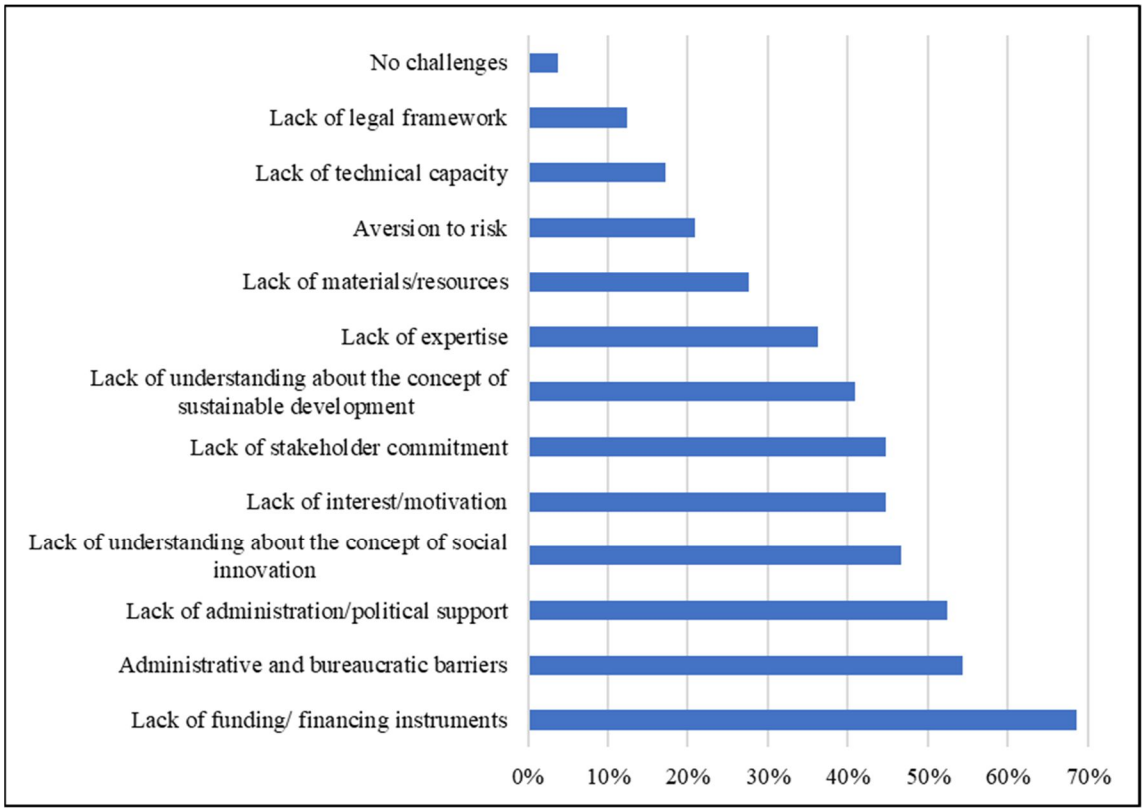


Figure 6. Elements that hinder the efforts of social innovation for sustainable development at universities

Where drivers of social innovation for sustainable development at universities are concerned, aspects of education, research and commitment

("Academy") were indicated by most of the respondents (87%). "Funding/financing instruments" was the second driver most cited (50%), and "Support opportunities (incubators, accelerators, programs, scientific parks, among others)" was indicated by 49% of the respondents. These findings also show the relevance of universities' alignment with social innovation for sustainable development, combining 'interdisciplinarity' and 'transdisciplinarity' (Bammer et al. 2020) as well as responsiveness to current problems with the ability to engage in long-term research and education (Reichert, 2019), reinforcing their role in the quadruple innovation helix with society, government, and business (Monteiro and Carayannis 2017).

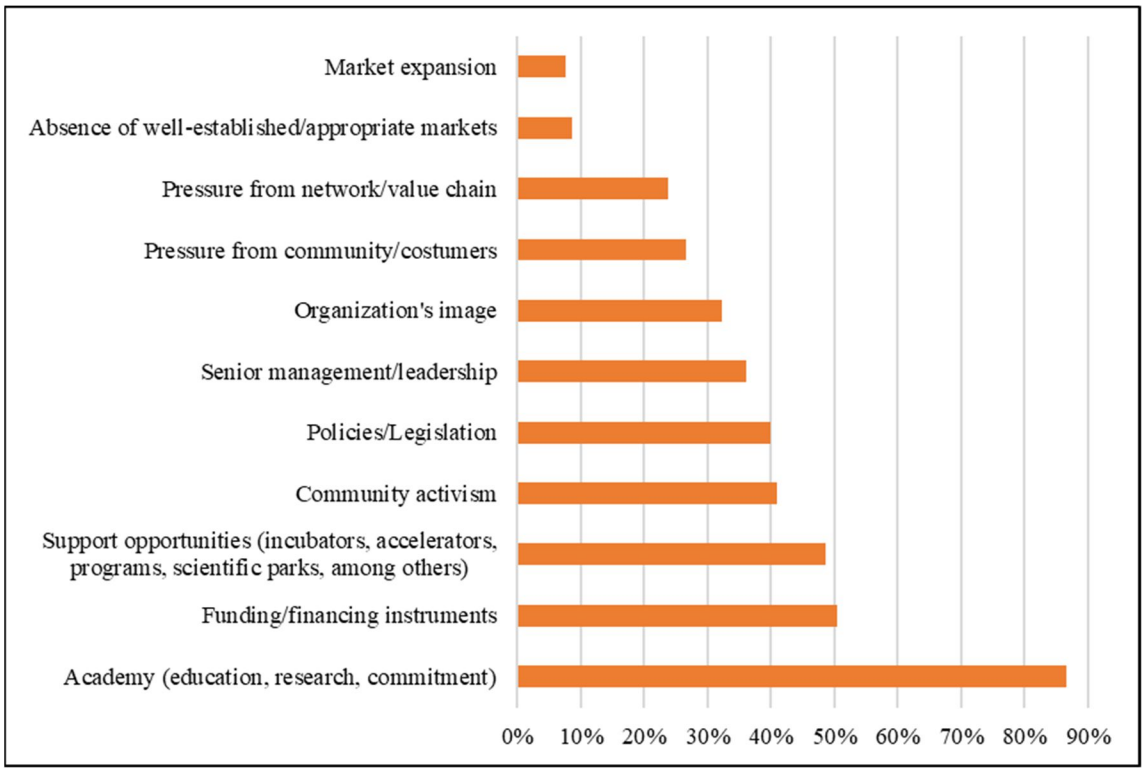


Figure 7. Drivers for the implementation of social innovation for sustainable development at universities

According to the sample, it is evident that funding and financing are important factors for social innovation, since their lack may be a threat or a challenge, in the same way instruments for funding and financing may enable and/or enhance the initiatives, fostering social innovation in the analysed context.

## 5. Conclusions

This research paper has examined appropriate methods, tools and factors which can play a critical role in shaping the relationship between social innovation, sustainable development and the SDGs. To achieve this, an online survey was conducted among experts in social innovation and sustainable development endorsement. In this respect, a number of case studies have been examined in a sample of 36 industrialized and less developed countries. The experts comprising the sample have considerable experience in social innovation and sustainability-focused issues (i.e. >3 years).

Our findings indicate some considerable management and policy development implications which contribute to the relative literature of social innovation and sustainable development (Eichler and Schwarz, 2019). A primary insight gained from the survey implies that the majority of respondents place emphasis on the key role and unique position of their institutions in creating enabling conditions in developing social innovation structures and/or products-services. Thus, they have analyzed various key features regarding the role of their institutions in creating social innovation as they are the supporting and transforming procedures. Crucially, they analyzed the suitable context provided by their

institutions to produce new knowledge and innovation. Another significant insight for promoting social innovation that emerged from the respondents' profile pertains to the concentration in mainly collecting and analyzing relative information by participating to open communities and undertaking entrepreneurial efforts with high social impacts. Likewise, the study's outcomes indicate that many of the respondents attach relatively more emphasis on innovation mechanisms through civil society and social entrepreneurship activities for creating social innovation. Moreover, the survey shows that the main beneficiaries from social innovation initiatives are academia-researchers as well as citizens who obtain greater autonomy, power and/or influence capacity. The majority of respondents also pointed out benefits arising from creating social innovation through procedures of information dissemination-sharing and resources as well as from solving pressing social problems.

Other critical lessons learned from the survey refer to underlying nexus describing of social innovation and the promotion of sustainable development/SDGs. Essentially, a number of initiatives have been undertaken in the respondents' institutions in an attempt to respond to and address several sustainability management issues such as biodiversity decline, air quality, energy efficiency, resource efficiency, waste collection and pollution control. In this context, a significant implication around SDGs' implementation is that emphasis is placed on the promotion of quality education, sustainable urban and community planning and development, climate mitigation-adaptation and human health and well-being for modern societies. Lastly, another point that emerged from the relative efforts of higher education institutions to promote social innovation and

sustainable development are some important barriers such as the lack of funding resources and related instruments, the large administrative and bureaucratic requirements, a lack of strong political support and the absence of an overarching definition regarding social innovation. Moreover, findings suggest that academic institutions also face considerable barriers to stimulate certain interactions between social innovation and sustainable development due to the lack of suitable support opportunities from decision-makers and market actors.

Our study has limitations which can be a meaningful starting point for future research endeavors. While it provides a suitable research context and sets forth an array of general conclusions, synthesized from respondents in multiple scientific areas from 36 countries with different socioeconomic and cultural backgrounds, it falls short in shedding light on the way in which the differentiation of socio-economic and cultural traits affect the diversity of responses between respondents of developed and less developed countries. Another limitation refers to the structure of the sample which consists mostly of academics and, as to be expected, their responses place relatively more emphasis on specific social innovation, educational and/or sustainable development issues. Such limitations may provide fertile ground be for future studies which may draw from larger and more diverse samples of social constituents and salient stakeholders of the social innovation domain.

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