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A systematic literature review of Technology Social Ventures: State of the art and directions for future research at the micro-, meso- and macro-level

Eleonora Grassi^a and Laura Toschi^{a*}

^a*Department of Management, University of Bologna, Bologna, Italy*

Eleonora Grassi

eleonora.grassi5@unibo.it

Department of Management – University of Bologna

<https://www.unibo.it/sitoweb/eleonora.grassi5/en>

* *Corresponding author:* Laura Toschi

Department of Management – University of Bologna

laura.toschi@unibo.it

<https://www.unibo.it/sitoweb/laura.toschi/en>

A systematic literature review of Technology Social Ventures: State of the art and directions for future research at the micro-, meso- and macro-level

Abstract

Technologies can play an important role in developing and scaling social innovations, thanks to their ability to reach and mobilize communities of people, use resources more effectively, and provide fast and broad responses to social needs. Seeing this potential, Technology Social Ventures have arisen as a form of social enterprises that employ technologies to achieve their social impact. This study systematically reviewed the extant knowledge regarding Technology Social Ventures, applying a ‘micro-meso-macro’ framework to structure the analysis. The results from this multi-level approach revealed ten primary areas of inquiry on the topic, as well as showed that the research field is still in early development and has not been academically delineated from Social Enterprises. Based on these findings, the paper outlines a research agenda to address the existing gaps and advance the field’s development.

Keywords: Technology Social Ventures; Social Entrepreneurship; Literature review

1. Introduction

Technology Social Ventures (TSVs) are organizations that aim at taking advantage of the potential offered by new technologies for generating a positive impact on society, while providing to remain economically sustainable (Desa & Kotha, 2005; Ismail et al., 2012; Scillitoe et al., 2018). They have been first defined by Desa & Kotha (2005; p. 6) as “*ventures that develop and deploy technology-driven solutions to address social needs in a financially sustainable manner*” and are also referred to as “Socio-tech ventures” (Scillitoe et al., 2018) or “Social tech start-ups” (Arena et al., 2018). These characteristics delineate a “*unique genre of*

social ventures” (Ismail et al., 2012, p.430) which lies at the intersection between Social Enterprises (SEs) and technological innovation.

On the one hand, as SEs, TSVs are organisations that pursue a social mission through business activity. Both for-profit and non-profit organisations can be identified as SEs (Gupta et al., 2020), as long as they reach financial sustainability (which excludes charities or public entities) and their primary objective is not economic returns, but the achievement of a social impact (for-profit organisations that develop CSR programs are therefore excluded). SEs are categorized as ‘hybrid’ entities since the business and social logics co-exist within the organisation (Battilana & Lee, 2014; Doherty et al., 2014). Often seen as two conflicting and opposed domains, recent research revealed that hybridity could also trigger positive outcomes (Mongelli et al., 2019) and that pursuing both social and economic objectives can enhance the venture’s ability to create both social and economic value (Battilana, 2018).

On the other hand, technological innovation is a key component of TSVs’ value proposition (Scillitoe et al., 2018). Such technological dimension has been generally linked to high-tech ventures, organisations that focus on the development and commercialization of new technologies in order to gain a competitive advantage (Baruch, 1997); the purpose of their innovation activities is exclusively to obtain an economic return. On the contrary, in TSVs the technological dimension is oriented towards creating social impact. In these terms, new technologies have proven to offer a wide range of possibilities and potentialities in creating and fostering social good. In particular, in recent years, practitioners and policymakers have started to emphasise the significant role that modern technologies could play in developing and scaling solutions to the most pressing social needs (Bria, 2015; Millard & Carpenter, 2014). Indeed, technologies have the potential to reach and mobilize communities of people (Gupta et al., 2019), to use resources more effectively (Misuraca & Pasi, 2019), and to provide fast and broad responses to social demands (Bria, 2015). The advantages offered by such technologies

thus start from greater scalability, whatever the goal considered: whether to include a broader set of people (*scaling out*), reach a higher level of institutionalization (*scaling-up*), or challenge societal cultural basis (*scaling deep*) (Moore et al., 2015; Ometto et al., 2019; Westley et al., 2014). Due to these characteristics, TSVs can play a pivotal role in contributing to the implementation of solutions to grand societal challenges (Ferraro et al., 2015), for which there are rising calls for innovative approaches that can address the shortcomings of traditional methods (European Commission, 2010).

To sum up, TSVs address the twin cornerstones of SE – ownership (i.e., financial return) and mission (i.e., social impact) – and technology innovation. TSVs pursue their social objective through the development of new technologies or the employment of existing ones in new, socially-oriented ways. Therefore, TSVs are a new form of ventures with (a) the organisational form of a SE, and where (b) the technological component becomes a tool for the creation of social value, rather than a mere source of competitive advantage. It is, thus, evident how TSVs fit neatly with neither high-tech ventures – which are oriented toward the generation of profitable innovative solutions – nor SEs – which combine economic and social missions without a precise focus on technology. In comparison to traditional high-tech ventures, TSVs must indeed cope with the integration and alignment of both their market and their social orientation, which is likely to influence the whole technology development and adoption process (Scillitoe et al., 2018). Besides, since the purpose of this whole process is to gain some social benefits and not only to increase the venture's competitiveness, traditional tools for supporting technology development are not necessarily suited, as is the case for example of traditional financing mechanisms (Arena et al., 2018). In these terms, extant research has yet to explore how the inclusion of a social purpose affects a venture's ability to effectively develop and implement new technologies and which aspects are more relevant to ensure its economic sustainability.

On the other hand, differently from most of the other SEs, TSVs must face the often-high costs of the technology adoption process, which makes the balancing of the market and social orientations more difficult to reach. As a result, TSVs seem to be more vulnerable to the risk of failure if the market component is overlooked, which increases the risk of prioritizing the market component over the social value and triggering processes of mission drifts (Ebrahim et al., 2014). How this challenge can be tackled has yet to be empirically analysed (Scillitoe et al., 2018) along with the opportunities created by such technologies in supporting SEs in the process of social value creation (Short et al., 2011).

In this direction, different authors have called for further inquiry on the topic in order to explore the main characteristics of TSVs (Ismail et al., 2012), the differences with commercial enterprises (Desa & Kotha, 2005), and their financing processes (Arena et al., 2018). Heeding these calls, this paper aims to review the extant literature in order to establish a clear framework of the issues and topics that have been explored, as well as define an agenda for guiding future research that can fill the existing gaps. We argue that, given their potential for the implementation of new solutions to current social challenges, the exploration of TSVs offers great opportunities both from an academic and a managerial perspective.

We framed our analysis according to a multilevel (micro-meso-macro) scheme, to get a more nuanced picture of the characteristics of this particular form of enterprise. As SEs, TSVs not only aim to alleviate a social need; They also strive to challenge the existing context and culture to tackle the problem at its roots (Saebi et al., 2019). Therefore, an exhaustive perspective on the phenomenon of TSVs cannot overlook the institutional context in which the process takes place and how it shapes and is shaped by its actors (Nicholls, 2010; Purтик & Arenas, 2019; Turker & Altuntas Vural, 2017). In order to shed light on how TSVs bring about socially innovative technologies, and how such technologies challenge and shape the existing background, we need an analysis that encompasses not only an organisation's actions (*micro-*

level) but also its interactions with other actors (*meso-level*) and its embeddedness in the institutional context (*macro-level*). This kind of approach is useful for evaluating processes that cut across multiple levels of analysis (Klein & Kozlowski, 2000), thereby generating a more complete and accurate perspective on the phenomenon. In the specific case of TSVs, this framework allows highlighting how technology, navigating all the levels of analysis, represents the key driver for the success of an organizational form oriented toward the generation of social impact through innovative solutions. The present paper aims to explore the extant literature about TSVs and frame it according to a micro-meso-macro scheme, and thereby understand which processes have been observed at the different levels of analysis. Such exploration will allow us to define an initial picture of how this research topic is developing and, from there, delineate future research directions to better understand how TSVs may reconnect research on social enterprises and technological innovation.

The remainder of the article is structured as follows: The second section describes the constructed sample and the analytical method employed. The third section presents the results of the review and delineates the main characteristic of research about TSVs. Finally, the fourth section ties the results to future research directions.

2. Methods

The aforementioned research question has been explored through a systematic literature review, which is an appropriate method for developing a reliable and accurate synthesis of existing knowledge in a certain research field (Tranfield et al., 2003). Furthermore, the review has been framed according to the multi-level scheme mentioned above. According to Paul and Criado (2020), reviews that follow a conceptual framework (namely *'framework-based*

reviews’) can produce more structured and robust results. The next sections will present the sample selection and analysis in detail.

2.1 Data Collection

The first step involved conducting an advanced search on titles, abstracts, and keywords via the databases of Web of Science and Scopus. Since Technology Social Ventures are defined as Social Enterprises, the search included the following keywords: ‘social venture*’/‘social enterprise*’/‘social start-up*’/‘social entrepreneur*’/‘social business*’/‘hybrid organisation*’, all matched with the keyword ‘tech*’ in order to include articles related to the use of technology. The results were then narrowed down to journal articles written in English and published before July 2020. The query resulted in 370 articles from Web of Science and 489 from Scopus: Once the duplicates were removed, the initial dataset featured 610 articles.

The second step involved screening the articles' titles and abstracts. Based on the definition of TSV (Ismail et al., 2012), we only retained articles related to (a) technological innovations aimed at solving a social need and (b) employed by organisations that pursue a double mission (financial sustainability and social impact)¹.

These inclusion criteria left out papers treating the topic of technological social innovations that were not implemented by Social Enterprises (for example, by government projects or charities) (59), articles focused on Social Enterprises that did not employ technological tools (198), or articles that related neither to technologies nor to SE (256). This latter case reflected a different meaning of certain keywords: for example, when the word ‘social’ related to organisations’ use of social networks, or when the word ‘tech*’ related to

¹ Studies about enterprises operating in the field of clean energy technologies were included in the sample: even if it would be possible to distinguish between social and environmental impact, pollution can be considered a societal problem, and environmental goals are often among social enterprises' objectives (Hillman et al., 2018; Hörisch, 2015).

the employment of a specific analytical technique. In order to ensure a high quality among the considered papers, we excluded articles that were not published in academic journals (12) or articles that were not published in journals included in the Social Science Citation Index (41). The final sample thus included 44 articles.

Finally, following a snowball technique, we supplemented the sample with two articles found through the screening of references that still corresponded to the inclusion criteria mentioned before. Figure 1 summarizes the data-gathering process. The final dataset was therefore composed of 46 articles (Table 1).

--- Insert Figure 1 and Table 1 about here ---

2.2 Sample Characteristics

The selected articles were carefully read and coded in order to outline the definition of TSV employed, the research question, the theory applied, the methodology used (including the sample and the country in which the research was conducted), the variables considered (when possible) and the main results.

The articles included in the sample were published between 2007 to 2020, but the majority were published after 2016, signalling that the topic has only recently attracted scholars' attention. Figure 2 shows that, even if the number of published articles on the topic has not followed a steady increasing trend, research on TSVs is concentrated in the last five years. Most of the articles were published in journals in the areas of Business & Management (24%), Information Systems (13%), ICT (13%), and Entrepreneurship (11%), or in multidisciplinary journals² (13%) as shown in Table 3. The 46 articles were spread across 36

² Journals have been classified by area according to journals' definitions, available on SCImago Journal & Country Rank.

different journals, meaning that most of the journals did not provide more than one article to the sample (Table 2).

--- Insert Figures 2 and Table 2 and 3 about here ---

Regarding the type of paper, eight articles had a theoretical nature (17%), while the remaining ones relied on empirical analysis. The case study analysis was the most employed methodology, used in more than half of the empirical papers (76%)³. While some articles analysed a sample of ventures based in more than one country (11%), most of the studies were set in a specific geographical area (80%): the majority in developing countries (45%), like India (24%), Africa (9%) or Latin America (4%). On the other hand, studies placed in the developed world (35%) were mainly based in the US (9%), Europe (9%) and Australia (7%)⁴. Table 4 describes the articles according to the geographical area. Finally, regarding the technologies developed and implemented, the most recurrent were ICT (28%), clean energy technologies (20%), and mobile applications or platforms (11%) (Table 5).

--- Insert Tables 4 and 5 about here ---

2.3 Research Approach

The papers were categorized according to a multi-level framework. Elaborating on Van Wijk et al. (2019), we considered three levels: (i) the *micro-level*, which comprised articles focused on the organisation; (ii) the *meso-level*, for articles addressing the interaction among the organisation and other actors; and (iii) the *macro-level*, for the articles that investigated the institutional context.

³ This feature characterises research about Social Enterprises (Gupta et al., 2020) and is typical of emerging fields of studies.

⁴ All the percentages are calculated on the totality of the sample.

For each level, we outlined the relationship investigated, the key findings obtained, and possible directions for future research. The main topics of inquiry that resulted from the analysis are listed in Tables 6 and 7. In the next sections, we will present the results of our systematic analysis. First, we will present the main themes that emerged from the analysis (Section 3.1), divided according to the three levels of analysis. For each theme, we will present the main findings, highlighting where authors agree or disagree about the results obtained and what are the main contributions. Since most of the articles explored several different aspects of a single case study, the results sometimes belonged to more than one level. In those cases, articles were considered as dealing with more than one level, and key findings were disentangled and reported in different sections. Then, we will draw some consideration about the state of the art of research about TSVs (Section 3.2), reflecting on the advancement of the field in terms of theories used, methodologies, and boundary conditions.

--- Insert Table 6 and Table 7 about here ---

3. Results

3.1 Thematic Analysis

Analysing the articles and relative findings according to the *micro-meso-macro* framework allowed us to uncover the main themes explored and discussed at every level of analysis. This section presents the various themes identified, what the key insights are and how they can inform us about the inner working of TSVs. Possible convergencies or inconsistencies among different authors will be pointed out, in order to understand where knowledge gaps exist and later inform the development of a research agenda.

3.1.1 Micro-Level

Articles focused on the micro-level investigate relationships and mechanisms relating to the organisational level, such as how the enterprise operates and is structured. Three main areas of investigation emerged from the analysis: TSVs' organisational features, organisational identity, and entrepreneurs' role.

Organizational Features. As previous literature tells us, different forms of social ventures exist, and this difference depends on their legal form, their organizational design, and the management model implemented (Saebi et al., 2019). Likewise, social ventures that develop socially-driven technological innovations can adopt different business models and display different characteristics. Despite these differences, a bundle of studies has tried to delineate the organizational features that typify TSVs and distinguish them from other enterprises, more specifically from other Social Enterprises. First of all, TSVs characterize themselves for their '*three-dimensional desire*' (Bahena-Álvarez et al., 2019) of developing technologies, and seeking to achieve both societal benefits and economic returns. Therefore, such ventures need to be accountable not only for their social and economic results but also for the innovativeness of their product or service. In these terms, the potential of technologies in fostering a SE's economic performance and impact has been pointed out, in particular in promoting the development, scaling, and diffusion of low-cost innovations (Peerally et al., 2019) through the reduction of monitoring costs, the creation of virtual communities, the improvement of transparency and consequently of the fundraising capacity (Rao Mukkamala et al., 2018; Vansandt et al., 2009). However, such advantages have not always been observed in practice, since different authors agree on the difficulties such ventures encounter in making an economic profit (Bahena-Álvarez et al., 2019; Wu et al., 2020). This feature constitutes a threat to the venture's survival and in some cases, it can be addressed through a cross-sectoral

governance model, which allows the integration of resources and technologies from both the public sector and other enterprises (Wu et al., 2020).

Another feature that distinguishes TSVs from other SEs is their necessity to develop and foster technological capabilities (Rao Mukkamala et al., 2018; Srivastava & Shainesh, 2015; Vansandt et al., 2009), which involve both the capability to use current technologies and the one to adapt and create new ones (Peerally et al., 2019). The process of acquiring such capabilities requires the employment of some specific resources, which Srivastava and Shainesh (2015) have identified in: knowledge (skills and competencies), technology, and institutions (socially and legally constituted entities). According to the authors, different resources are more critical depending on the organisation's stage of evolution: knowledge is prevalent during ideation and launch; technology is pivotal during the infancy and early growth stages, while both technology and institutions influence the organisation's late growth and expansion.

To sum up, the technological element which distinguishes TSVs from other forms of SEs entails some practical characteristics that are typical of such organizations, like the necessity of acquiring and fostering specific skills and resources to develop adequate capabilities and the need to be accountable not only for the economic and social work but also for the technological development. Besides, whether such aspects bring about advantages for TSVs or hinder their capacity of making a profit is an issue about which authors have found contrasting results.

Organisational Identity. As Social Enterprises, one of the challenges TSVs can encounter relates to how they define their identity and the implications this could have. Their hybrid nature can indeed lead to some tensions between the different logics that drive the organization (Battilana & Dorado, 2010; Pache & Santos, 2010), and this can in turn affect the

whole process of technology development and adoption (Scillitoe et al., 2018). Thus, when it comes to organisational identity, scholars' focus has been on TSVs' multiple entities—a mix of social, innovative, and economic logics—and how organisations manage this complexity.

In these terms, the authors agree that favouring a commercial orientation can help with securing economic sustainability, while a social orientation can enhance the enterprise's connections with the surrounding community and also improve its ultimate social impact (Bonina et al., 2020; Khan et al., 2018; Langley et al., 2017). Since the prevalence of one logic over the others entails different consequences, the organisational identity can be strategically changed depending on the development phase or the organisational activity considered (Scillitoe et al., 2018).

Regarding the different enterprise's life stages, ventures that are still in the phase of developing new technologies are likely to rely more on the economic logic, in order to guarantee the needed capital is raised, while the social logic is emphasized once the venture is more stable and secure (Bonina et al., 2020). At the same time, organizational logics can be differently combined also according to different organisational dimensions. In these terms, Khan et al. (2018) found out that (i) the social logic is preferred when it comes to defining the primary organizational mission and mobilizing resources, (ii) the approach to innovation is halfway between the social and commercial logic, and (iii) success is measured mainly through the commercial logic. In any case, the authors agree that social objectives and economic success must be successfully reconciled in order to result in sustainable SEs (Bonina et al., 2020; Khan et al., 2018; Langley et al., 2017).

Overall, what these articles reveal is that in TSVs the business logic is relatively more important than it is for other kinds of SEs and that the organizational identity is consequently more likely to be inclined towards it. This is due mainly to the emphasis on technology and the

consequent necessity of securing capital for its development and implementation, which makes finding a balance between the different logics an important challenge to be tackled.

Entrepreneur's Role. Finally, articles exploring the micro-level analysed the entrepreneurs' role inside the organisation. One topic of inquiry concerns entrepreneurs' motivations for starting TSVs. Related to this topic, Yitshaki and Kropp (2016) compared high-tech and social entrepreneurs, highlighting their differences in passion and self-identity: for high-tech entrepreneurs, passion stems from the challenges faced while self-identity is mainly built through past work experiences; on the other hand, for social entrepreneurs, passion is driven by the impact generated while their self-identity stems from a broader set of life events. Although the authors do not explicitly refer to TSVs, they suggest that the two forms of organization analysed show different dynamics and goals for their entrepreneurial activity, creating tension in terms of entrepreneurs' motivation, perception, identity in the case of TSVs.

Among the articles reviewed for this study, the ones that explore the individual-level triggers of entrepreneurship in TSVs have reported different findings. Sandeep and Ravishankar (2015) for example found that entrepreneurs' motivations behind these TSVs are related to feelings and emotions of compassion for marginalized communities and a sense of guilt for the entrepreneurs' privileged position and lack of contribution to society. On the other hand, McLoughlin et al. (2019), observed that previous experiences as social workers played a pivotal role in motivating entrepreneurs to found TSVs since their background made them aware of people's needs. These results reveal that TSVs' entrepreneur motivations are more consistent with the ones Yitshaki and Kropp (2016) identify as characteristic of social entrepreneurs if compared to the high-tech ones.

Other researches have explored the role that entrepreneurs play as key actors in enabling new technologies for social purposes (Bhatt et al., 2016; Chavez et al., 2017; Sriwannawita &

Laestadiusb, 2015; Van Rensburg et al., 2008). What emerges from these studies is that the importance of different entrepreneurs' characteristics largely depends on the geographical context of analysis. In developing countries, the entrepreneur's vision and energy is indeed a fundamental feature behind users' engagement and their adoption of the social-impact technology (Bhatt et al., 2016). Indeed, technologies are more easily adopted and spread if the entrepreneur is a trusted member of the community, one who possesses knowledge about both the technology and the social context (Van Rensburg et al., 2008). Also, the founder's background and the presence of qualified managers can play a role in technological diffusion, thanks to their ability to transfer knowledge to customers (Sriwannawita & Laestadiusb, 2015). In the developed world, on the contrary, a social innovation's success is largely driven by the entrepreneur's degree of technical competence and managerial capabilities (Chavez et al., 2017). What emerges from these studies is that the importance of different entrepreneur characteristics changes based on the context: In developing countries, gaining the community's trust is fundamental; in the developed world, entrepreneurs' technical capabilities play a more critical role.

Summary. To sum up, the bundle of studies exploring micro-level aspects of TSVs focuses on the complexity that the combination of social purposes, business activities, and technology implementation bring about for the organization itself. This complexity emerges in terms of skills and capabilities required, management of the organizational identity and motivation, and role of the entrepreneurs. Whether finding the right balance to manage such complexity could constitute a challenge for the survival and development of the organization, the interdependence among the three aspects of business, society, and technology also offers great opportunities for mutual enhancement and contamination.

3.1.2 Meso-Level

Articles focused on the meso-level explore various kinds of interactions among the organisation and other relevant actors. The topics analysed can be divided into three different groups: interaction with funders, targeted beneficiaries' engagement, and alliances and partnerships with other actors.

3.2.1 Interaction with Funders. As mentioned above, if compared to other forms of SEs, TSVs have a more capital-intensive nature, and they consequently must be able to attract higher investments and financing in order to secure their economic stability. Studies relating to this topic have investigated both the propensity of funders for investing in TSVs and the possible barriers and advantages TSVs can encounter when looking for financial resources.

From the funders' perspective, Wood (2012) found that some personality traits—like empathy, openness, or agreeableness—influence investors' willingness to support TSVs; however, this relationship is mediated by the perception of the potential change generated. In these terms, it is essential that the entrepreneurs appropriately define and communicate the social value TSVs can bring to society (Wong et al., 2019). Such a process is useful in building the venture's legitimacy by showing its impact on society and consequently attracting the needed financing and resources.

On the other hand, from the enterprises' perspective, the focus has been on the barriers and challenges that characterise TSVs' access to finance. In terms of challenges, Arena et al. (2018) stressed how the typical barriers of high-tech start-ups are amplified by TSVs' hybrid nature, which entails lower financial returns, longer time horizons, and higher uncertainty of the marketability of products and services. However, such barriers have not been found in the field of green start-ups (Bergset, 2018), probably due to the increasing professionalization of

the sector. These contrasting results show that the technology implemented, and the operating sector can play a pivotal role in establishing the accessibility of financing tools for TSVs.

Nonetheless, some authors have also pointed out that some characteristics of TSVs could help in attracting investments, like the expectation of a social return beyond the financial one, which can attract a wider range of support from both market and non-market entities, in particular from Social Impact Investors (Arena et al., 2018).

In general, these studies point out how TSVs' nature influences the financing process of TSVs: as high-tech ventures, they must be able to attract financial capital, especially in the early phases of their development, while as SEs they experience both the challenges and the benefits of pursuing a social objective.

3.2.2 Beneficiaries' Engagement. Extant research about SEs claims that the relationship with the beneficiaries is fundamental, to the point that different typologies of SEs can be distinguished according to this aspect. Thus we can find SEs whose aim is to create value *for* their beneficiaries, who constitute the sole recipients of their product or service, or to create value *with* the beneficiaries, including them into the value-creating process (Saebi et al., 2019). In this scenario, our review has brought up that the use of technological tools can play a facilitating role for both kinds of SEs.

In these terms, a pool of studies has highlighted how different technologies can facilitate the target beneficiaries' inclusion in the design and implementation of SIs. Bhatt et al. (2016), for example, highlighted how active beneficiaries' engagement in designing ICT-based social innovations in rural India played an important role in reaching the desired outcomes. Similarly, digital platforms designed to allow users to share relevant information, like the ones analysed by McLoughlin et al (2019) and Lin et al. (2019), have proven to be relevant tools for co-creating value through users' and stakeholders' engagement. Overall, the added value that

technologies seem to offer to SEs is an increased ability to interact and to collect information about their beneficiaries, which allows them to better identify societal needs, design tailor-made solutions, and adjust them based on the obtained outcomes.

3.2.3 Partnerships and Alliances

The last segment of studies belonging to the meso-level deal with partnerships and alliances with other actors, which are seen by many authors as a fruitful way to overcome the difficulties TSVs can encounter in getting access to the sufficient amount of resources required by their capital-intensive nature. In these terms, Cacciolatti et al. (2020) found that social high-tech start-ups can leverage different kinds of strategic alliances (like accelerators, joint ventures, equity options, etc.) in order to improve their credibility and attract investors' attention. TSVs can also benefit from partnerships with other kinds of actors like civil organizations, which can act as intermediaries between the enterprise and the target community to improve the acceptance of the technology and help build financial resilience (Conway et al., 2019). Besides, collaboration with actors belonging to different sectors has proven to be a useful tool both for identifying problems to be resolved through technological or social innovations (Foley & Wiek, 2014) and to expand TSVs' innovation ability and their consequent growth and development (Meyskens & Carsrud, 2013). However, partnerships between different societal actors can also produce conflicts stemming from different requirements and expectations (Darcy et al., 2019).

To sum up, all the authors agree that partnerships and alliances allow a TSV to mobilize resources that would otherwise be unavailable and that can be detrimental to the survival and development of this kind of social venture.

Summary. Overall, articles about TSVs related to the meso-level stress the pivotal role that interactions and relationships with other actors play for the ventures' success and development and, at the same time, the role played by new technologies in facilitating and enabling such interactions. Regarding the help external actors can provide to TSVs, it has emerged how these ventures are likely to need more support if compared with other kinds of SEs, since the technological component requires capital availability and skills that are not always present inside the organization. On the other hand, relating to how technologies can foster the ability of TSVs of connecting with different actors, research has mainly focussed on how it can help the organization to involve and engage their beneficiaries, in order to reach a higher impact.

3.1.3 Macro-Level

Articles classified as belonging to the macro-level consider aspects related to the interaction between the organisation and its surrounding context. They can be grouped into four main areas of inquiry: TSVs as creators of social value; the role of national policies; support from the ecosystem; and processes of institutionalization.

3.3.1 Social Value Creation. As mentioned above, TSVs' ultimate purpose is to trigger social change. According to this statement, a stream of studies has explored their actual success in enhancing societal conditions and living standards in several sectors. Some examples are reducing poverty or the digital divide (Huang & Cox, 2016), helping disadvantaged people develop ICT capabilities (Hopkins, 2007; Gurstein et al., 2009), or diffusing clean energy technologies to increase electricity access (Munro et al., 2016; Warnecke & Houndonougbo, 2016).

In the analysis of the elements of TSVs' success, it has been noted that the organizational form of SE offers some advantages for the implementation of socially oriented technologies, especially when compared to other models like charities or governmental programmes. First of all, Crean (2010) argued that this form is a suitable vehicle for the provision of goods and services due to its high level of transparency, rapid prototyping, and reinvention ability. Furthermore, TSVs have the ability to employ market mechanisms in order to develop and spread socially impactful technologies. This feature allows for constant monitoring and assessment along the technology development process, which ensures a higher-quality product (Jue & Pruter, 2015) and can help to reduce barriers arising from a technology's economic unsustainability (Yousuf et al., 2017). Furthermore, in developing countries, TSVs' model often offers a trusted alternative for people that are sceptical and doubtful about the usefulness of development aids (Venot, 2016).

To sum up, what this bundle of studies tells us about the actual ability of TSVs to trigger the societal change they seek is that both the technological and the SE dimension contributes to determining their successfulness. Indeed, technologies hold great potential for the resolution of many social problems more efficiently and effectively, and implementing them through the establishment of TSVs offers a fruitful structure to leverage this potential.

3.3.2 National Policies

Studies in this stream have also explored the role that national policies play in the development of TSVs. Research addressing this topic has mainly referred to National Innovation Policies (NIP) and National Innovation Systems (NIS) for their fundamental role in providing effective positive societal outcomes, for example through the provision of facilities for the technology transfer practices that enable the development of TSVs (Chavez et al.,

2017). Indeed, political and socio-economic systems can sustain socially-oriented technological innovation adoption and diffusion: Governments can create an innovation ecosystem comprising institutions, policies, and regulations for generating demand, diffusing knowledge and capabilities (Surie, 2017; Surie & Groen, 2017), and creating opportunities to scale up both the efficacy and impact of the social value created.

3.3.3 Ecosystem

Furthermore, several studies have highlighted how the ecosystem—the network of organizations and institutions in which the enterprise is embedded—influences the organisation’s development and its outcomes. On the one hand, the main focus has been on how the ecosystem can support TSVs: In many cases, due to their need for financial capital, these enterprises were only able to survive thanks to support from the government, financial intermediaries, local organisations, or market institutions (Heeks & Arun, 2010; Jha et al., 2016; Madon & Sharanappa, 2013). Beyond the financial aspect, there are also other kinds of support TSVs can receive from their ecosystems, which can help them develop their solutions and grow over time. For example, universities’ R&D facilities and accelerator programmes can play a pivotal role in supporting the development of TSVs, thanks to their ability to create connections between the social enterprise and the world of technology entrepreneurship (Cheah & Ho, 2019).

Just as the ecosystem can contribute to the development and spread of socially-oriented technologies, new technologies can play a role in enabling the formation of such ecosystems (Dubé et al., 2020). The technology thus becomes the tool that allows different actors to join their forces and to scale up the impact of social interventions.

3.3.4 Institutionalization Process

Finally, research has considered the process of TSVs' institutionalization: namely, how these organisations acquire legitimacy from their environment and institutional field (Suchman, 1995). When it comes to SEs and SI, the process of legitimacy building can be particularly challenging, since they usually establish themselves in opposition to current norms and practices, since their objective is to challenge them and trigger processes of deep change. For this reason, actors that operate in this direction have been defined by previous literature as *Institutional Entrepreneurs* (Battilana et al., 2009; Dorado, 2005).

The analysis of articles related to this topic has pointed out different strategies TSVs can put into place to overcome these challenges. First of all, institutional change should be implemented in a soft form (i.e., gradual and smooth) in order to help social entrepreneurs gain acceptance for their technological projects (Parthiban et al., 2020). This is particularly true when TSVs operate in marginalized contexts, in which it might be more difficult to introduce new technologies and gain acceptance and legitimacy for them. Another strategy TSVs can implement to increase their legitimacy relates to crafting their markets through a deep understanding of local institutions, that reflect practices, social actions, and interactions of individuals (Jain & Koch, 2020), which can help to design tailor-made products. At last, the work of Desa (2012) and Desa and Basu (2013) aimed at exploring which practices TSVs implement in order to gain institutional legitimacy and overcome resource constraints, focuses mainly on the concept of "bricolage". Defined as '*making do by applying combinations of resources at hand to new problems and opportunities*' (Baker & Nelson, 2005, p.333) – bricolage can be used by TSVs in order to obtain institutional support. Thanks to this practice, TSVs can survive and grow despite resource limitations, until they eventually reach a stage where other institutions perceive them as legitimate and worthy partners.

Overall, articles exploring the institutionalization processes of TSVs agree about the importance this process holds for both the survival and growth of the ventures on the one hand and the successful spread and adoption of the focal technology on the other hand. At the same time, it is also recognized that TSVs should pay particular attention to this process and understand the strategies that can help them to bring it about successfully.

Summary. Articles about the meso-level have explored both the influences that the institutional context exerts on TSVs and, on the contrary, the process through which TSVs strive to change that context and institutionalize the social change envisioned. In terms of influences from the external environment, the results of the analysed articles have shown that both the national systems and the organizations' ecosystems have the power of enhancing or hindering the successful development of TSVs and the consequent spread of the socially driven technologies. For this reason, TSVs should be able to understand which strategies can better align the organization with the surrounding context to legitimize its operations and activities. Such legitimation is the starting point for triggering the institutional changes that lie at the core of TSVs' mission.

3.2 Assessing the state of TSV research

As detailed in the previous section, the present literature review uncovered some important themes that have been dealt with by existing academic research on the topic of TSVs. This analysis has also brought up some features that characterize the whole of the articles considered and that provide information about the state of the art and the possible evolution of the field.

First, it emerged clearly that the field is still in its infancy and lacks a basis of shared definitions and frameworks. Most of the analysed articles do not employ any definition of TSV and do not refer explicitly to TSV as a kind of enterprise that needs to be distinguished from Social Enterprises. However, the considerable amount of studies related to the topic indicates that the academic world has already started to move its steps towards the exploration of TSVs, even if not always recognizing it as a unique organizational form. Notwithstanding, the analysis confirmed that there are some unique features of TSVs, like the need for capital to develop their technologies or the ease of scalability, which make them worthy of separate attention. Since the already existing analytical frameworks of either social entrepreneurship and high-tech entrepreneurship do not fully explain this particular phenomenon, the establishment of a dedicated conceptual approach (Shane & Venkataraman, 2000) would allow to better explain and understand TSVs' antecedents and outcomes.

Second, from the articles' analysis, a lack of theoretical conceptualization around the phenomenon emerged. However, most of the articles did not apply any specific theoretical approach⁵, and streams of research referring to one or another theory are not easily identifiable. The reason for this finding is that most of the studies analysed single cases and were mainly focused on practical and managerial results.

This leads to the third point, which regards the methodology employed in the literature. As mentioned before, most of the articles adopted a methodology focused on case studies, which are widely employed in emerging academic fields because they allow scholars to build theories and models that closely represent reality (Eisenhardt, 1989) and deeply explore the 'how' and 'why' of the focal phenomenon (Yin, 1984). Although a descriptive approach is recommendable for exploring new phenomena, this kind of study can lack generalizability and

⁵ Among the few studies that clearly refer to some theoretical debate, the most applied approaches relate to Institutional Theory and Resource-Based Theory, but some studies also referred to Diffusion Theory, Identity Orientation, Disruptive Innovation Theory, Complex Systems, and Entrepreneurial Ecosystem.

need more systematic approaches to confirm their obtained results. Notwithstanding, they can be an accurate starting point for developing and empirically testing hypotheses and propositions on larger samples, which at the present state of the art only a few studies have done. In this direction, either quantitative, qualitative, or mixed methodologies can provide reliable answers to the many questions about TSVs that still remain unexplored.

Finally, some contextual constraints have emerged, which should be taken into consideration when analysing TSVs as a unique organizational form. First, the analysis revealed that when exploring the field of TSVs, the context plays a central role and must be not neglected. The difference between developed and developing countries seems to be especially dominant in defining the research outcomes. These two worlds are marked by significant cultural and contextual differences; as a result, TSVs in each country have to respond to a distinct set of societal needs and demands. This influences the enterprise's structure, outcomes, and interactions with the surrounding community. Similarly, the organisation's structure and interactions are meaningfully shaped by its sector and the kind of technology it develops. For example, ventures operating with clean energy technologies work in a sector that is already quite developed and professionalized; the same cannot be said for technologies aimed at impacting other sectors, like education or culture. Thus, both the surrounding context and the kind of technology implemented constitute important elements that could influence the results of studies about TSVs if not adequately taken into consideration.

To sum up, the articles' analysis has confirmed the idea that TSVs deserve a standalone study, as they operate as boundary-spanning entities situated at the intersection of public, economic, social, and technological domains and that they play a pivotal role in the development of technological solutions for complex problems. However, such organisations' high-tech nature and dual motives (economic and social) produce a complex system of trade-offs that create new barriers to their success. The comprehension and conceptualization of such

trade-offs have yet to be fully addressed by academic research, which in this field still lack the theoretical and methodological rigor that could help the establishment and development of the field. Nonetheless, the field offers several opportunities for further exploration and integration with different domains and theoretical perspectives. In the next section, we will try to define where these opportunities lie and delineate an agenda for future research that builds on the main themes identified and the gaps left open by extant research.

4. Future Research Directions

Due to the field's early development stage, numerous unexplored research themes can be addressed by future studies. Among the areas highlighted in this review, there are some aspects we recommend focusing on. Building on the key insights identified by the thematic analysis, we propose to develop an agenda for future research that unfolds at the different levels of analysis considered. Table 8 illustrates the possible avenues for future research and the relative research questions for every level of analysis.

--- Insert Table 8 about here ---

4.1 Micro-level

The analysis of the articles about the micro-level has brought to light the existence of some specific features of TSVs, which not only define them as a separate organizational form but also offer opportunities for developing insightful research on the topic. All these characteristics stem from the multiplicity of logics and dimensions which coexist inside TSVs, where the elements of business, social impact, and technology must be adequately balanced and managed. As shown in the results section, such complexity affects the capabilities organizations must develop and the management of their identity. Building on what the present review has uncovered, we propose to follow these two dimensions in developing future research on the micro-level of TSVs.

First, in terms of organisational capabilities, research efforts have been directed towards the understanding of which capabilities TSVs need to achieve their mission and generate a societal impact. From a theoretical point of view, this kind of exploration could take advantage of the perspective offered by the Resource-Based-View, according to which firms combine resources in order to create capabilities to produce value and maintain a competitive advantage (Barney et al., 2001). In these terms, the present review underscores that TSVs need to improve their technological capabilities to develop their products and scale their impact, and to integrate them with a broader pool of heterogeneous resources which serve their social and economic missions. Future research could explore how TSVs build and maintain technological capabilities and how the development and maintenance of such capabilities affect the organizational processes that are typical of other kinds of SEs. Shedding light on how this process works, what valuable mix of resources is needed, which type of governance is more suitable to manage it could contribute to the understanding of how TSVs build capabilities that allow them to overcome the resource constraints they must face.

Second, in terms of organizational identity, the present study has pointed out that the tensions experienced by SEs in dealing with multiple logics and demands get more complicated in TSVs, given the existence of the technological dimension. The exploration of the field of TSVs could thus offer an interesting setting for advancing knowledge about the functioning of organizations where there are multiple logics at stake. Such exploration could be backed by the already well-developed literature about hybrid organizations, which explores how aspects of different organizational forms can be combined in a single organization (Battilana & Lee, 2014). At the state of the art, research about hybrid organizing has largely focussed on the combination of two different logics, especially referring to SEs (Battilana, 2018; Doherty et al., 2014; Shepherd et al., 2019; Sumelius et al., 2015). Taking TSVs as the object of analysis would allow us to widen this perspective and take into account how different logics can interact

and integrate each other, and how their configuration can change according to the development stage and the focal organizational function.

4.2 Meso-level

The articles relating to the meso-level have explored the relationships TSVs build with other actors and how these relationships benefit the organization on the one hand and benefit from the employment of new technologies on the other hand. We suggest taking these two avenues as the starting point for future research.

First, relating to the support TSVs can get from other actors, the review made clear that TSVs' capital-intensive nature means their development and scaling depend considerably on financing (Arena et al., 2018). However, the barriers to access funding are particularly high for TSVs due to their complex nature, which may cause a lack of interest toward investments with uncertain potential and longer time horizons for becoming profitable. In these terms, literature that could be usefully integrated is the one that, by focusing on the social dimension, has started to address financing mechanisms and tools to support SEs. The main stream of research in this field refers to the concept of Social Finance (Nicholls & Emerson, 2015) and Impact Investing (Barber et al., 2020) as an emerging practice that can solve SEs' financing needs; in this case, funders may encompass private investors (Agrawal & Hockerts, 2019; Glänzel & Scheuerle, 2016), banks (Bengo & Arena, 2019), venture philanthropists (Bonassié et al., 2019) or the public sector (Vanderhoven et al., 2020). TSVs, however, are characterised not only by a social dimension but also by a technological domain. Accordingly, TSVs, similar to high-tech enterprises, may play a pivotal role in driving the development of radical innovations (Kerr & Nanda, 2015). Investors may, thus, look at TSVs with lower scepticism, as the uncertainty

characterizing social enterprises may be, in some way, compensated by the technological dimension, which allows them to better define their identity.

Future studies could build on these streams by exploring how TSVs can attract the needed financing, how this impacts the venture's development, and how funders determine TSVs' investment readiness. An examination of the antecedents and consequences of the adoption of different financing sources (like venture capital, business angels, crowdfunding, or accelerators) and the different decision-making processes employed either from the investors' or the invested venture's perspective would not only improve our knowledge about TSVs but also contribute to research about entrepreneurial financing (Drover et al., 2017). Also, given the complex nature of TSVs, which encloses elements at the nexus between the social, economic, and technological spheres, a longitudinal analysis able to capture how financial needs change at different development stages, depending on the importance given to one dimension over another, is extremely relevant.

On the other hand, the review highlighted the role new technologies could play in enabling and fostering connections with other actors. Such advantages have been explored mainly relating to the beneficiaries of the intended social impact, in terms of engagement and information provided. However, little effort has been directed towards a systematic understanding of which affordances pertain to different technologies and how these enhance the social impact generated. In this direction, the concept of *technological affordances* could be extremely useful, as it relates to “*the ways in which particular behaviours, values, or norms may be encouraged, facilitated, hindered, permitted or even prevented by the technological design*” (Martin et al., 2017; p-1397). A deep exploration of which specific technological affordances could improve TSVs' relationship with their beneficiaries and ultimately their impact could help identify which technologies are better suited for specific social impact objectives and advance our knowledge about technological affordances overall. Besides, how

connections and relationships are enhanced by technological tools could be observed also concerning actors other than beneficiaries, like strategic partners or public entities. In these terms, new technologies can provide the basis for fruitful cross-sector partnerships (see, for example, Logue & Grimes, 2020 for an analysis of social-mission digital platforms), a field that is getting increasing scholars' attention due to its potential in developing solutions to solve grand societal challenges (Bode et al., 2019; Dentoni et al., 2018; Pedersen et al., 2021).

4.3 Macro-level

The exploration of TSVs from a macro-perspective has mainly focussed on the institutional context in which they operate and how this could affect and be affected by the organization. In terms of how the context influences the organization's behaviour, extant research has pointed out the constraints it poses to the development of TSVs and, consequently, how such organizations should be able to gain the legitimacy they need. However, scant attention has been paid to the strategic actions these ventures can put into practice to get the support they need. Future research should take these aspects into account and explore how different strategies can help TSVs in overcoming the constraints posed by their environments and whether the technological could help or harm them in this process.

Besides, how TSVs can trigger institutional change is still less explored and we see it as holding great potential for future research. Exploring the way TSVs succeed in changing their institutional context through entrepreneurial action indeed offers great opportunities for advancing our understanding of not only how actors can trigger institutional change, but also the role technologies can play in this regard. From a theoretical perspective, connecting the notion of institutional entrepreneurship with TSVs research can be particularly useful, since it refers to entrepreneurs whose actions are directed towards the objective of changing institutions

(DiMaggio, 1988; Dorado, 2005; Pacheco et al., 2010). Such a theoretical framework has been already applied in research about social ventures (Battilana et al, 2009) and can provide interesting insights on the process through which TSVs bridge between the different institutional logics of business, technology, and society. According to Tracey et al. (2011) the establishment of new organizational forms that combine different elements of different institutional logics is a process that involves different kinds of institutional work, by framing a problem and the relative solution differently, through the establishment of a new organizational form; and finally to its legitimation in different institutional fields.

Through the investigation of how TSVs' entrepreneurs connect the resolution of an existing societal need with the development and implementation of new technology, there are interesting possibilities to contribute to this literature. Furthermore, there are numerous kinds of institutional changes TSVs may aim to reach through the exploitation of the technological dimension of their business: in normative and regulatory institutions, in community and societal norms, in market institutions, or their organisational field., Shedding light on what kind of institutional work is needed to create a new organizational form by combining existing institutional logics (Tracey et al., 2011), what kind of strategic partnerships are displayed (Weidner et al., 2019), and whether and how external institutions represent specific strengths or weaknesses to the process should be in the agenda of future research.

5. Conclusions

This review highlights the increasing relevance of the TSV phenomenon. The articles analysed, which encompass a variety of case studies and samples across both developed and developing countries, underscore that practitioners are actively developing socially-oriented technological innovations through the organisational form of TSVs. Academics are following suit, as

indicated by the growing number of articles published in the last five years. By systematically reviewing the extant literature according to a clear definition, we contributed to the field's establishment and future development. The adoption of shared definitions at every level of inquiry and more systematic research designs will allow future researchers to operationalize the concept and its associated variables in a way that fosters a robust and grounded field of research. Such efforts are needed to bolster the field's development and open a dialogue among different disciplines and approaches.

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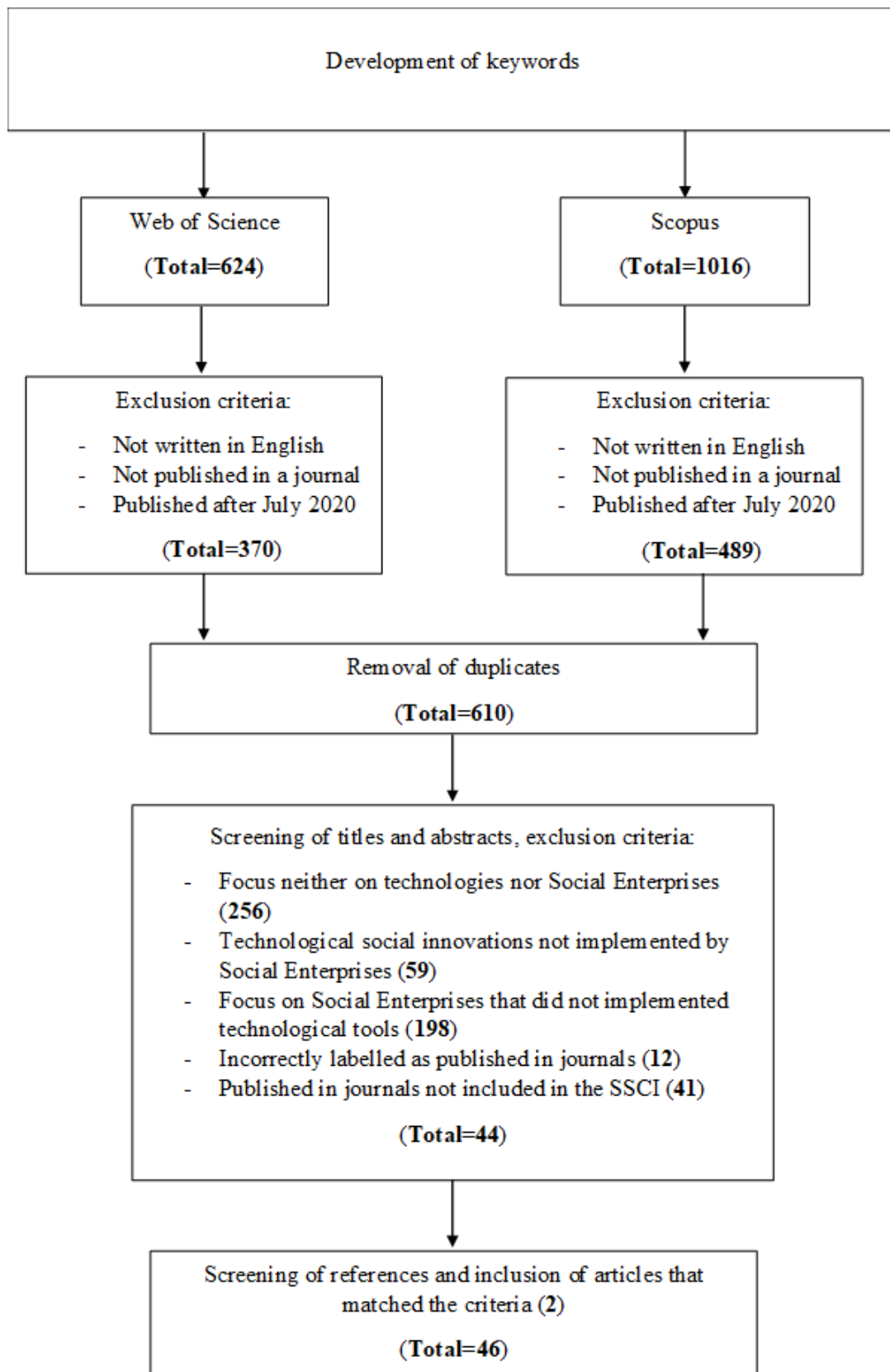
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Figure 1: Sample selection process⁶



⁶ The item “Total” indicates the number of articles present in the sample after every step.

Figure 2: Publication years of articles included in the sample

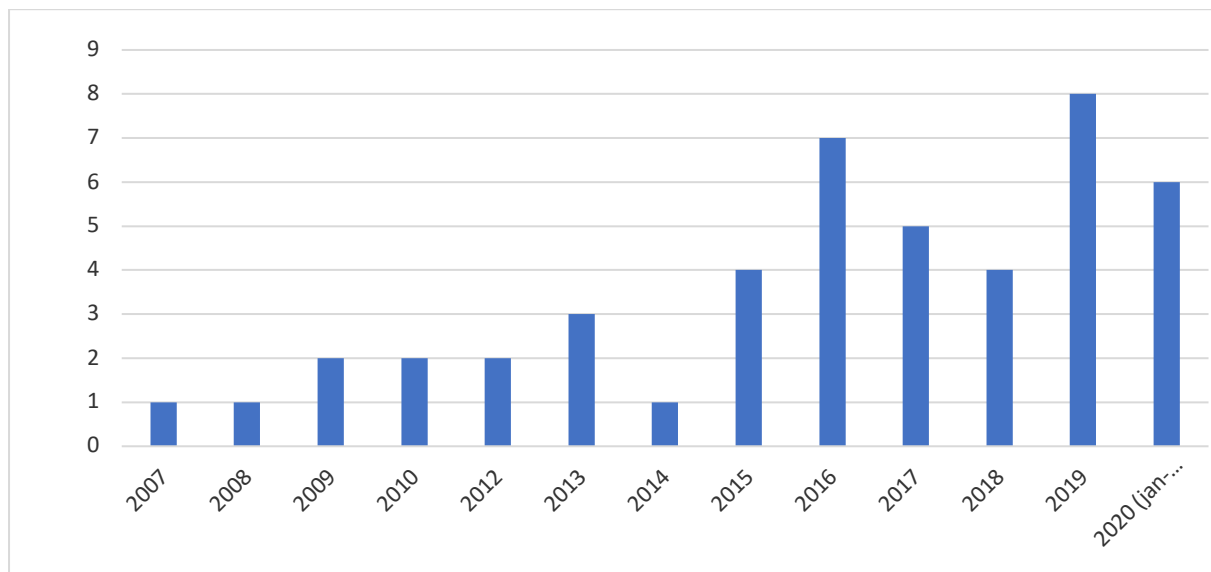


Table 1 – List of papers analysed in the review

Authors	Article Title	Source Title	Year
Arena, M; Bengo, I; Calderini, M; Chiodo, V	Unlocking finance for social tech start-ups: Is there a new opportunity space?	Technological Forecasting and Social Change	2018
Bahena-Alvarez, IL; Cordon-Pozo, E; Delgado-Cruz, A	Social Entrepreneurship in the Conduct of Responsible Innovation: Analysis Cluster in Mexican SMEs	Sustainability	2019
Bergset, L	Green start-up finance - where do particular challenges lie?	International Journal Of Entrepreneurial Behaviour & Research	2018
Bhatt, P; Ahmad, AJ; Roomi, MA	Social innovation with open source software: User engagement and development challenges in India	Technovation	2016
Bonina, C; Lopez-Berzosa, D; Scarlata, M	Social, commercial, or both? An exploratory study of the identity orientation of digital social innovations	Information Systems Journal	2020
Cacciolatti, L; Rosli, A; Ruiz-Alba, JL; Chang, J	Strategic alliances and firm performance in start-ups with a social mission	Journal of Business Research	2020

Chavez, VA; Stinnett, R; Tierney, R; Walsh, S	The importance of the technologically able social innovators and entrepreneurs: A US national laboratory perspective	Technological Forecasting And Social Change	2017
Cheah, S; Ho, YP	Building the Ecosystem for Social Entrepreneurship: University Social Enterprise Cases in Singapore	Science Technology And Society	2019
Conway, D; Robinson, B; Mudimu, P; Chitekwe, T; Koranteng, K; Swilling, M	Exploring hybrid models for universal access to basic solar energy services in informal settlements: Case studies from South Africa and Zimbabwe	Energy Research & Social Science	2019
Crean, KW	Accelerating Innovation In Information And Communication Technology For Health	Health Affairs	2010
Darcy, S; Yerbury, H; Maxwell, H	Disability citizenship and digital capital: the case of engagement with a social enterprise telco	Information Communication & Society	2019
Desa G.,	Resource Mobilization in International Social Entrepreneurship: Bricolage as a Mechanism of Institutional Transformation	Entrepreneurship: Theory and Practice	2012
Desa G., Basu S.,	Optimization or Bricolage? Overcoming Resource Constraints in Global Social Entrepreneurship	Strategic Entrepreneurship Journal	2013
Dube, L; Mcrae, C; Wu, YH; Ghosh, S; Allen, S; Ross, D; Ray, S; Joshi, PK; McDermott, J; Jha, S; Moore, S	Impact of the eKutir ICT-enabled social enterprise and its distributed microentrepreneur strategy on fruit and vegetable consumption: A quasi-experimental study in rural and urban communities in Odisha, India	Food Policy	2020

Foley, RW; Wiek, A	Scenarios of nanotechnology innovation vis-a-vis sustainability challenges	Futures	2014
Gurstein, P; O'Neill, J; Petersen, M	Outsourcing to further human development: the case of a social enterprise in Cambodia and Laos	Journal Of Architectural And Planning Research	2009
Heeks, R; Arun, S	Social outsourcing as a development tool: the impact of outsourcing IT services to women's social enterprises in Kerala	Journal Of International Development	2010
Hopkins, L	Social capital, health and electronic community in public high-rise estates: An Australian case-study	Health Sociology Review	2007
Huang, SC; Cox, JL	Establishing a social entrepreneurial system to bridge the digital divide for the poor: a case study for Taiwan	Universal Access In The Information Society	2016
Jain, S; Koch, J	Crafting markets and fostering entrepreneurship within underserved communities: social ventures and clean energy provision in Asia	Entrepreneurship And Regional Development	2020
Jha, SK; Pinsonneault, A; Dube, L	The Evolution Of An Ict Platform-Enabled Ecosystem For Poverty Alleviation: The Case Of Ekutir	MIS Quarterly	2016
Jue, D; Pruter, M	Creating an essential marketplace to close the information gap for social impact technologies	Current Science	2015

Khan, S; Lacity, M; Erran Carmel, E	Entrepreneurial impact sourcing: a conceptual framework of social and commercial institutional logics	Information Systems Journal	2018
Langley, DJ; Zirngiebl, M; Sbeih, J; Devoldere, B	Trajectories to reconcile sharing and commercialization in the maker movement	Business Horizons	2017
Lin, PMG; Peng, KL; Ren, LP; Lin, CW	Hospitality co-creation with mobility-impaired people	International Journal Of Hospitality Management	2019
Madon, S; Sharanappa, S	Social IT outsourcing and development: theorising the linkage	Information Systems Journal	2013
McLoughlin I., McNicoll Y., Beecher Kelk A., Cornford J., Hutchinson K.,	A 'Tripadvisor' for disability? Social enterprise and 'digital disruption' in Australia	Information, Communication And Society	2019
Meyskens, M; Carsrud, AL	Nascent green-technology ventures: a study assessing the role of partnership diversity in firm success	Small Business Economics	2013
Mukkamala R.R., Vatrappu R., Ray P.K., Sengupta G., Halder S.,	Blockchain for social business: Principles and applications	IEEE Engineering Management Review	2018

Munro, P; van der Horst, G; Willans, S; Kemeny, P; Christiansen, A; Schiavone, N	Social enterprise development and renewable energy dissemination in Africa: The experience of the community charging station model in Sierra Leone	Progress In Development Studies	2016
Parthiban, R; Qureshi, I; Bandyopadhyay, S; Bhatt, B; Jaikumar, S	Leveraging ICT to Overcome Complementary Institutional Voids: Insights from Institutional Work by a Social Enterprise to Help Marginalized	Information Systems Frontiers	2020
Peerally, JA; De Fuentes, C; Figueiredo, PN	Inclusive innovation and the role of technological capability-building: The social business Grameen Danone Foods Limited in Bangladesh	Long Range Planning	2019
Sandeep, MS; Ravishankar, MN	Social innovations in outsourcing: An empirical investigation of impact sourcing companies in India	Journal Of Strategic Information Systems	2015
Srivastava, SC; Shainesh, G	Bridging the service divide through digitally enabled service innovations: evidence from Indian healthcare service providers	MIS Quarterly	2015

Sriwannawita, P; Laestadiusb, S	Determinants of the diffusion of solar home systems: case study among low-income inhabitants in Bangladesh	Energy & Environment	2015
Surie, G	Creating the innovation ecosystem for renewable energy via social entrepreneurship: Insights from India	Technological Forecasting And Social Change	2017
Surie, G; Groen, A	The importance of social entrepreneurship in national systems of innovation - An introduction	Technological Forecasting And Social Change	2017
Van Rensburg J.R., Veldsman A., Jenkins M.,	From technologists to social enterprise developers: Our journey as ICT for development	Information Technology for Development	2008
VanSandt, CV; Sud, M; Marme, C	Enabling the Original Intent: Catalysts for Social Entrepreneurship	Journal Of Business Ethics	2009
Venot, JP	A Success of Some Sort: Social Enterprises and Drip Irrigation in the Developing World	World Development	2016
Warnecke, T; Houndonougbo, AN	Let There Be Light: Social Enterprise, Solar Power, and Sustainable Development	Journal Of Economic Issues	2016

Wong, CY; Hsieh, YC; Wu, CY; Hu, MC	Academic Entrepreneurship for Social Innovation in Taiwan: The Cases of the OurCityLove Platform and the Forest App	Science Technology And Society	2019
Wood, S	Prone to Progress: Using Personality to Identify Supporters of Innovative Social Entrepreneurship	Journal Of Public Policy & Marketing	2012
Wu, YJ; Liu, WJ; Yuan, CH	A mobile-based barrier-free service transportation platform for people with disabilities	Computers In Human Behavior	2020
Yitshaki, R; Kropp, F	Entrepreneurial passions and identities in different contexts: a comparison between high-tech and social entrepreneurs	Entrepreneurship And Regional Development	2016
Yousuf, A; Sultana, S; Monir, MU; Karim, A; Bin Rahmaddulla, SR	Social business models for empowering the biogas technology	Science Technology And Society	2017

Table 2 – Sources

Source Title	N° of articles	% on total
Technological Forecasting and Social Change	4	9%
Information Systems Journal	3	7%
Science, Technology and Society	3	7%
Entrepreneurship and Regional Development	2	4%
Information, Communication & Society	2	4%
MIS Quarterly	2	4%
Business Horizons	1	2%
Computers in Human Behaviour	1	2%
Current Science	1	2%
Energy & Environment	1	2%
Energy Research & Social Science	1	2%
Entrepreneurship: Theory and Practice	1	2%
Food Policy	1	2%
Futures	1	2%
Health Affairs	1	2%
Health Sociology Review	1	2%
IEEE Engineering Management Review	1	2%
Information Systems Frontiers	1	2%
Information Technology for Development	1	2%
International Journal of Entrepreneurial Behaviour & Research	1	2%
International Journal of Hospitality Management	1	2%
Journal of Architectural and Planning Research	1	2%
Journal of Business Ethics	1	2%
Journal of Business Research	1	2%
Journal of Economic Issues	1	2%
Journal of International Development	1	2%
Journal of Public Policy and Marketing	1	2%
Journal of Strategic Information Systems	1	2%
Long Range Planning	1	2%
Progress in Development Studies	1	2%
Small Business Economics	1	2%
Strategic Entrepreneurship Journal	1	2%
Sustainability	1	2%
Technovation	1	2%
Universal Access in Information Society	1	2%
World Development	1	2%

Table 3 – Sources by area of studies

Source's area of studies	N° of articles	% on total
Business & Management	11	24%
Information & Communication Technologies	6	13%
Information Systems	6	13%
Multidisciplinary	6	13%
Entrepreneurship	5	11%
Development Studies	3	7%
Energy & Environmental Studies	2	4%
Health	2	4%
Public Policy	2	4%
Architecture and Urban Planning	1	2%
Economics	1	2%
Innovation	1	2%

Table 4 – Number of articles for geographical area

	Geographical Area	N° of articles	Total	% on total
Developing Countries	Asia	15	21	45%
	Africa	4		
	Latin America	2		
Developed Countries	Europe	4	16	35%
	United States	4		
	Australia	3		
	Taiwan	3		
	Singapore	1		
	Israeli	1		

Table 5 – Number of articles for technology inquired

Type of technology	N° of articles	% on total
No specific technology	15	33%
ICT	13	28%
Clean Energy Technologies	9	20%
Mobile Phone Apps	3	7%
Digital Platforms	2	4%
Blockchain	1	2%
Health	1	2%
Irrigation Technologies	1	2%
Nano-technologies	1	2%

Table 6 – Main areas of inquiry

Micro-level	Organisations' features
	Organisational identity
	Entrepreneur's figure and role
Meso-level	Interactions with funders
	Beneficiaries' engagement
	Alliances and partnerships
Macro-level	Social value creation
	Role of national policies
	Support from the ecosystem
	Processes of institutionalization

Table 7 – Articles by main areas of inquiry

Level of analysis	Area of Inquiry	Main results	Articles
Micro	Organisations' features	Poor financial results Cross-sectorial governance Importance of technological capabilities	Bahena-Álvarez et al., 2019; Mukkamala, et al., 2018; Peerally et al., 2019; Srivastava & Shainesh, 2015; Vansandt et al., 2009; Wu et al., 2020
	Organisational identity	Different prevailing logics according to the development phase Importance of business logic for securing capital for technologies development and implementation	Bonina et al., 2020; Khan et al., 2018; Langley et al., 2017
	Entrepreneur's figure and role	Entrepreneur as a key figure for the enablement of technologies	Bhatt et al., 2016; Chavez et al., 2017; McLoughlin et al., 2019; Sandeep & Ravishankar, 2015; Sriwannawita & Laestadiusb, 2015; Van Rensburg et al., 2008; Yitshaki & Kropp, 2016
Meso	Interactions with funders	TSVs encounter some barriers in accessing finance, but also some advantages	Arena et al., 2018; Bergset, 2018; Wong et al., 2019; Wood, 2012
	Beneficiaries' engagement	Interaction with beneficiaries is fundamental for identifying societal needs	Bhatt et al., 2016; Lin et al., 2019; McLoughlin et al., 2019
	Alliances and partnerships	Partnerships with other social actors help TSVs in mobilizing resources	Cacciolatti et al., 2020; Conway et al., 2019; Darcy et al., 2019; Foley & Wiek, 2014; Meyskens & Carsrud, 2013
Macro	Social value creation	TSVs are appropriate vehicles for the provision of goods and services to the society	Crean, 2010; Gurstein et al., 2009; Hopkins, 2007; Huang & Cox, 2016; Jue & Pruter, 2015; Venot, 2016; Munro et al., 2016; Warnecke & Houndonougbo, 2016; Yousuf et al., 2017
	Role of national policies	National policies can sustain TSVs' technologies adoption and diffusion	Chavez et al., 2017; Surie, 2017; Surie & Groen, 2017
	Support from the ecosystem	Different ecosystem's characteristics can support TSVs	Cheah & Ho, 2019; Dubé et al., 2020; Heeks & Arun, 2010; Jha et al., 2016; Madon & Sharanappa, 2013
	Processes of institutionalization	Institutional contexts affect TSVs but are also shaped by them	Desa, 2012; Desa & Basu, 2013; Jain & Koch, 2020; Parthiban et al., 2020

Level of analysis	Possible future research focus	Possible future research questions
Micro-level	Organizational capabilities	<p><i>What type of resources is more relevant for the growth of TSVs, depending on their level of development?</i></p> <p><i>What type of governance allows TSVs to integrate resources deriving from different domains (social, economic, technological)?</i></p> <p><i>How do TSVs build and maintain technological capabilities to create social impact?</i></p>
	Organisational identity	<p><i>How do TSVs manage the organizational complexity stemming from the co-existence of business and social objectives with technology implementation?</i></p> <p><i>How do TSVs strategically build and communicate their identity according to their level of development?</i></p>
Meso-level	Financing mechanisms	<p><i>Which are the most suitable financial actors for supporting the growth of TSVs?</i></p> <p><i>What is the impact of different types of financing for the development of TSVs?</i></p> <p><i>What is the role of technology in increasing the level of transparency of TSVs toward external investors?</i></p> <p><i>How do financial needs change at different development phases?</i></p> <p><i>According to which criteria do funders determine TSV's investment readiness?</i></p>
	Technological affordances	<p><i>Which affordances pertain to different technologies?</i></p> <p><i>How can technologies help TSVs connect with external actors?</i></p> <p><i>How can technologies enable the creation of cross-sector partnerships?</i></p>
Macro-level	Context influence	<p><i>How do TSVs mobilize resources in the presence/absence of supportive institutional environments?</i></p> <p><i>How do institutions influence TSVs' behaviour?</i></p> <p><i>How do institutions enable or constrain TSVs?</i></p>
	Institutional entrepreneurship	<p><i>What kind of institutional work is implemented by TSVs to create a new organizational form?</i></p> <p><i>Which is the legitimization process TSVs follow to give reliability to their new organizational form?</i></p>

Table 8 – Future research directions