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Artificial Intelligence Creativity Support Tools for Creating social enterprises' Business Models

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Artificial Intelligence Creativity Support Tools for Creating social enterprises' Business Models

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Abstract: Social enterprises are home to different logics, thus making the search for business models capable of reconciling conflicts between economic and social goals is very complex. We posit that digital technologies can help social entrepreneurs overcome this difficulty. Indeed, this paper aims at offering a comprehensive picture of the state of the art of literature about (1) business model innovation, (2) social enterprises, and (3) creativity support tools based on artificial intelligence, by conducting a systematic literature review of these different streams of research. Rather than offering a comprehensive review of the three literatures, we aim at identifying the main themes and sub-themes connecting them. On this basis, we then propose a new point of view on how complex business model innovation (such as that dealing with social enterprises' hybrid model) can be boosted by creativity support tools based on artificial intelligence, and draw an agenda for expanding research about this promising nexus.

Keywords: Social enterprise; business model; creativity support tool

JEL Classification Numbers: M1

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Artificial Intelligence Creativity Support Tools for Creating social enterprises' Business Models

ABSTRACT

Social enterprises are home to different logics, thus making the search for business models capable of reconciling conflicts between economic and social goals is very complex. We posit that digital technologies can help social entrepreneurs overcome this difficulty. Indeed, this paper aims at offering a comprehensive picture of the state of the art of literature about (1) business model innovation, (2) social enterprises, and (3) creativity support tools based on artificial intelligence, by conducting a systematic literature review of these different streams of research. Rather than offering a comprehensive review of the three literatures, we aim at identifying the main themes and sub-themes connecting them. On this basis, we then propose a new point of view on how complex business model innovation (such as that dealing with social enterprises' hybrid model) can be boosted by creativity support tools based on artificial intelligence, and draw an agenda for expanding research about this promising nexus.

INTRODUCTION

The urgency and magnitude of global issues, such as climate change, increasing inequality, and long-lasting poverty, demand rapid activation of socially-engaged organizations (Van Abel, Haagsma, & Panhuijsen, 2021). Social enterprises, defined as hybrid organizations that pursue a social mission while trying to achieve economic sustainability (e.g., Pache & Santos, 2013; Santos, 2012; Yunus, Moingeon, & Lehmann-Ortega, 2010), play a vital role in responding to this demand, as they strive to provide economically viable solutions to long-seated problems. However, social enterprises are born usually remain relatively small, always at risk of facing problems that exceed their resources (Van Abel et al., 2021) and prone to enduring conflicts among their social and economic goals (Battilana & Dorado, 2010). Creating business models that can reconcile tensions between the two goals is a complex (Moss, Short, Payne, & Lumpkin, 2011; Santos, Pache, & Birkholz, 2015) but potentially very rewarding task, as that would imply making such hybrid model to grow and thrive, providing self-sustaining solutions to social issues. As of now, no research has explored how social enterprises' business models can be enhanced or created with the support of digital tools such as artificial intelligence. This paper is dedicated to exploring this nexus via a systematic literature review meant to answer the following research question: "*What is the state of the art of management research with regard to AI-aided business model innovation for social enterprises?*". This question implies exploring the links among three main streams of literature: (1) business model innovation, (2) social enterprises conceived as hybrid organizations, and (3) creativity support tools based on artificial intelligence. We do so in the following, first exploring the actual 'thickness' of the links between the three streams by means of bibliometric analysis applied to a selection of studies from Web of Science; and then analyzing in dept a selection of papers from Web of Science and Scopus that connect the different streams to unfold the ideas developed in such nexus. We

3

conclude by discussing the findings and indicating an agenda for further exploring this multifaceted area of research.

BACKGROUND AND MOTIVATION

According to the literature about business model innovation and AI creativity, technology can help creation of new business models and foster innovation of the existing ones in two main ways.

First, firms can use technology to create higher value for customers, change the way activities are organized, and change the way stakeholders are engaged (Baden-Fuller & Haefliger, 2013; Krotov, 2017; Li, 2020; Tekic & Koroteev, 2019). In the case of social enterprises, technology can be a leverage to scale-up their activities contributing to the well-being of society (Ratten, 2013). For instance, iKure, a social enterprise operating in the healthcare industry, and Alison, active in the education industry, are relevant examples of how technology can be used to overcome the problem of scalability in this domain (Giudici, Combs, Cannatelli, & Smith, 2020; Smith, Kistruck, & Cannatelli, 2016). Specifically, iKure establishes partnerships with leading tech organizations, such as NEXT-lab (from MIT Sloan) and IBM, to scale its operations aimed at providing remoted health monitoring for Covid-19 patients in India's rural communities. Alison, instead, scaled up by means of its online platform, built to deliver free, top-quality materials for education and workplace-based skills to users all around the world.

Second, technology can be used as a tool to enhance entrepreneurs' creativity in generating new business models or innovating the existing ones (Bicen & Johnson, 2015; Eppler, Hoffmann, & Bresciani, 2011). About this second point, research about human-computer interactions and creativity support tools has highlighted the importance and efficacy of creativity support tools based on artificial intelligence (AI-CSTs) in enhancing experts'

4

creativity in a plethora of industries (e.g., Davis, Hsiao, Singh, Li, & Magerko, 2016; Koch, Lucero, Hegemann, & Oulasvirta, 2019; Shugrina, Lu, & Diverdi, 2017). In particular, such tools can contribute to solving complex problems by recording information and making non-obvious connections to a larger extent than humans, thus suggesting new avenues for creators' thinking (Forgionne & Newman, 2007). This ability might be of pivotal importance in the innovation of social enterprises' business model as it can boost their ability to think creatively about solutions to the tensions between economic and social goals. However, research about the role of AI-CSTs in innovating social enterprises' business models is still lacking, to the best of our knowledge -and according to the bibliometric analysis we develop below.

METHODOLOGY

The present work, based on a systematic literature review, proposes a framework and future research questions that can help social entrepreneurs to innovate social enterprises' business models using AI-CSTs. To do so, it relies on three different streams of literature: (1) business model innovation, (2) social enterprises conceived as hybrid organizations, and (3) AI-CSTs.

We first conducted an explorative analysis to have a first idea of the possible connections among the three streams of literature. We conducted a search on Web of Science using jointly keywords belonging to the three streams of literature (e.g., business model innovat*, business model*, hybrid organiz*, social enterpris*, AI, creativ*, creative thinking) asking for papers and conference proceedings. We did not filter by subject area nor year of publication because we wanted to have an as complete as possible overview of the connections among the three topics until now. Then, we analyzed the documents resulted from the search using VOSviewer (Van Eck & Waltman, 2007).

5

From this explorative study, three different clusters emerged (Figure 1). The first cluster touches upon the literature on business model innovation (the red one). It is highly related with the second cluster capturing studies on social enterprises (the blue one), and to the third cluster related to AI-CSTs (the green one). While the business model innovation cluster is related to both the other two clusters, a connection between the AI-CSTs and the social enterprises cluster is missing. This means that there is scant literature that treats these three topics together. This "missing link" is what motivated us to further investigate the literature.

With this purpose in mind, we conducted a systematic literature review to give meaning to the existing links and propose how to fill the gap due to the missing ones. We structured our work as follows: first, we describe the methodology adopted and the related protocol. Then, we present the results emerging from the analysis. Finally, we highlight the conclusions and the agenda for future research.

According to the management literature on systematic literature review (e.g., Linnenluecke, Marrone, & Singh, 2020; Pittaway & Cope, 2007; Thorpe, Holt, Macpherson, & Pittaway, 2005; Tranfield, Denyer, & Smart, 2003) we first need to frame the search based on the structure of the field to be investigated. The exploratory bibliometric analysis conducted on the Web Of Science database showed that, while the links between the business model innovation cluster and the other two clusters is present and thick, that between these last two is missing. Indeed, among the three streams of literature, the one investigating AI-CSTs can be placed roughly in the computer science field, while our choices of keywords to identify business model innovation and social enterprises comes from the management field.

Based on this evidence we decided to run four different searches on both Web Of Science and Scopus databases, structured as follows.

We first ran three searches looking for papers that populate the links between the different literature streams. We searched paper relative to the link between the business model innovation and the social enterprise pair of streams using jointly keywords like business model innovat*, business model*, innovat*, hybrid organiz*, social enterpris*; we then jointly searched for keywords belonging to the business model innovation and AI-CSTs pair of streams, e.g., business model innovat*, business model*, innovat*, AI, creativ*, creative thinking; finally, we looked for keywords capturing at the same time the social enterprise and AI-CSTs pair of streams, e.g., social enterpris*, hybrid organiz*, ai, creativ*, creative thinking. We thus got as sense of the amount of research developed for each link, confirming the initial finding obtained via our exploratory bibliometric analysis conducted on the Web Of Science database (Figure 1).

As the previous search, based the keywords in the perimeter of the management literature, it risked to underrepresent the AI-CSTs stream, whose origin is in computer science. Indeed, as showed in Figure1, we did not detect the link between AI-CST cluster and the social enterprise cluster, a result in line with actual absence of that link but also with a different representation of hybrid organizations and social enterprises in the computer science domain, where these concepts may have been captured by different wording, undetected by during our search. To minimize that risk, we conduct a fourth search to get a basket of documents that provides a representation of the state of the art of the literature on AI-CSTs *per se* as complete as possible.

In each search, we looked for papers and conference proceedings[1] published between 2010 and 2021. In conducting the four searches we adopted a recursive approach with an

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[1] Conference proceedings have a different status in Management and in Computer Science. To be conservative and avoid exclusion of valuable publications, we selected in also conference proceedings

inclusive perspective. It means that, for each search, we conducted up to two rounds of searches. Whether we conducted one or two rounds depends on how many documents resulted from a first query based on the keywords reported above and specific subject areas, such as management, business, and computer science/artificial intelligence or computer science/interdisciplinary applications. If the first round resulted in a number of documents too small, we conducted a second round of search in which we did not filter by the subject areas. For example, we run one round for the search about Business Model and Social Enterprise pair of streams and two rounds for the search about Social Enterprise and AI Creativity pair of streams. Table 1 shows the details of the queries of each search conducted on Web Of Science and Scopus and the number of documents provided by each database; while Figure 2 shows the results of the paper selection process we describe below.

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The four searches resulted in a total of 584 documents (papers and conference proceedings). The process to select the relevant documents followed four steps and was conducted separately for each of the four searches (Figure 2). First, we removed duplicate documents within and between the two databases. Second, abstracts were reviewed to ensure the documents' substantive context. Third, we filtered the remaining documents based on the number of citations relative to the year of publication. The process we used for this last point was the following: first, documents of each pair of streams were grouped depending on the year of publication; then, for each year we ordered documents according to the number of their citations and kept only papers in the last quartile. This procedure allowed us to select the most cited documents while avoiding the risk to remove relevant documents with a low

8

number of citations due to their recent publication. Fourth, we undertook a full-text analysis of the selected papers to ensure documents' substantive relevance. The selection process resulted in a database composed of 83 documents: 22 documents about business model innovation and social enterprise; 14 documents about business model innovation and AI-CSTs; 3 documents about social enterprise and AI-CSTs; 44 documents about AI-CSTs only. The total amount of documents included in the analysis (i.e., 83) is in line with the number of documents taken into consideration in other systematic literature review in the management literature (e.g., Li, 2020; Thorpe et al., 2005). Following (Henry, Foss, & Ahl, 2016), thematic reading guidelines and ad hoc coding systems were developed for each pair of streams.

RESULTS

Several main themes and sub-themes emerged from the analysis of the documents identified (Table 2). In this section, we present the results of the analysis conducted on the documents emerged from each search and future research directions for each pair of streams.

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Business model and social enterprise pair of streams

The reading of the documents belonging to the business model and social enterprise pair of streams led to the identification of three main themes:

a) Defining the borders of business hybrids (Kolk & Lenfant, 2016; Santos et al., 2015; Svensson & Seifried, 2017);

9

b) social enterprises' business models and strategic choices (Goyal, Sergi, & Kapoor, 2017; Ko & Liu, 2021; Schneider & Clauß, 2020; Spieth, Schneider, Clauß, & Eichenberg, 2019);

c) antecedents of business model innovation in social enterprises (Alegre & Berbegal-Mirabent, 2016; De Silva, Al-Tabbaa, & Khan, 2021; Tykkyläinen & Ritala, 2021).

Defining the Borders of Business Hybrids

The first main theme emerging from the analysis of documents is about scholars' effort to delineate the borders of business hybrids and some rules to identify and classify them. From the analysis of this main theme, two sub-themes emerged: (1) categorizations of hybrid organizations and social enterprises, and (2) hybrid organizing in specific areas.

Categorizations of hybrid organizations and social enterprises. The first sub-theme hinges upon the mapping of the different types of hybrid organizations. Kolk, and Lenfant (2016) developed a categorization of different types of hybrid organizations operating in the peace and reconciliation sector based on several dimensions of hybridity: social dimensions addressed in mission and outlook; importance of human element, including positive leadership; organizations' perceptions of mutual benefits; scope of relationships; organizations' perceptions of progressive interactions; broader dimensions of markets and institutions, including development/peace. Drawing on this, they systematized the different type of hybrid organizations on a continuum from social only to financial only, with hybrid in the middle. Within this middle-range, they identified four different types of hybrid organizations. *Semi-hybrid non-profits* are non- profit organizations (and cooperatives) that have (developed) a profit orientation, usually with a well-articulated social purpose. Proper *hybrid organizations* are those organizations that define themselves as social enterprises and whose mission is highly focused on reaching a social impact, paying attention to the human

10

element, and engaging with various stakeholders, such that mutual benefits can be sustained. *Semi-hybrid firms* are firms with a very prominent social agenda but are less outspoken on some of the other dimensions. Finally, *Mainstream social firms* are mainstream profit-oriented firms with medium-level hybridity scores.

As social enterprises are hybrid organizations *par excellence* (Kolk & Lenfant, 2016), scholars have focused on them even more specifically, providing definitions that tried to capture the key dimensions of their business models. Along this line, Santos et al. (2015) defined social enterprises as "organizations that run commercial operations with the goal of addressing a societal problem, thus adopting a social or environmental mission" (p. 37) and based on two key theoretical dimensions (whether value spillovers are contingent, and possible overlap between clients and beneficiaries), identified four business models. Each model represents a different combination of the two dimensions, so that in certain cases beneficiaries and clients may coincide, while spillovers may be automatically generated (Market hybrids: e.g., Base of the Pyramid business models) or are instead to be proactively generated by the social enterprise, that has to include them explicitly in its business model (e.g., Blending Hybrids, as in the case of microcredit-like business models). In other cases, beneficiaries and clients may not coincide, while again spillovers may emerge spontaneously (Bridging hybrid, as for business model similar to work-integration social enterprises) or need to be generated (Coupling hybrid, as for fair-trade and the like). This sub-theme shows that social enterprises can in fact be realized in a wide range of business models, offering opportunities for innovation and reorganization of the business model components.

Hybrid organizing in a specific area. The second sub-theme applies the concept of hybrid organizing to a specific type of business hybrids, and features one paper by Svensson, and Seifried (2017), who introduce the concept of hybrid organizing into the Sport for Development and Peace (SDP) sector. Their work showed several peculiarities of these

hybrids in term of organizational design, organizational activities, workforce composition, interorganizational relationships, and organizational culture, providing a concrete example of the high level of customization social enterprises' business models can take in specific sectors.

Social enterprises' business models and strategic choices

The second main theme focuses on the creation and carrying on of a social enterprise as a structured, both profit- and social-oriented organization. From the analysis of this main theme, three sub-themes emerged: (1) value drivers of social enterprises' business models, (2) strategic choices when becoming a social enterprise, and (3) strategic choices to improve social enterprise performances.

Value drivers of social enterprises' business models. Spieth et al. (2019) develop a qualitative study showing that value drivers of social enterprises' business models are different from those of for-profit businesses. They propose four value drivers. The first is *responsible efficiency*, about which they found that, contrary to for-profit business models, social enterprise business models assign priority to social value rather than economic returns. As per the second driver, *impact complementarities*, it implies that social enterprises search for social and economic impacts' complementarities rather than for higher value stemming from bundles of good and activities, as it happens in for-profit businesses. The third value driver for social enterprises' business models is *shared values*, manifest in social enterprises' emphasis on the importance of share value with the community rather than on lock-in strategies meant to exert control on stakeholders and partners. Finally, *integration novelty* is the fourth driver, and refers to the fact that social enterprises integrate the novelty offered by for-profit businesses (i.e., satisfying a demand through new activities and new forms of governance) with creating and achieving social value. Business models of social enterprises,

12

thus, can be drawn along several dimension of value creation, something that opens the possibility to strategically create models that modulate value creation in different ways.

Strategic choices to become a social enterprise. Deciding to engage in social entrepreneurship implies a series of strategic choices. Schneider and Clauß (2020) identified three fundamental choices: first, how to combine distinct institutional logics, with their social and/or ecological mission strongly prioritized; second, how to make sure to be highly consistent in behaviors, for example concerning what claimed and what done, or when rejecting business opportunities that do not allow the firm to act according to its values; third, how to put a strong emphasis on partnerships and community support.

Strategic choices of this kind do not pertain only to for-profit firms. Indeed, not-for-profit organizations might want to engage in social entrepreneurship as well. Along this line, Ko and Liu (2021) provide three actions that non-profit organizations have to perform to incorporate commercial processes and convert themselves into a social enterprise: engaging in commercial revenue strategies; creating a professionalized organizational form; legitimating a socio-commercial business model. Thus, the features of the business model are seen as the mechanisms through which strategic choices take shape and are realized concretely.

Strategic choices to improve social enterprise performances. Research on strategic choices has also investigated the problems of the economic sustainability, scalability, and social impact of social enterprises. Goyal et al. (2017) recommend several strategic choices for social enterprises targeting the basic needs of the base of the pyramid segment. Some of these strategic choices focus on segmenting the beneficiaries/clients on the basis of demographic, geographic and psychographic variables, on offering need-based customized end-to-end solutions, or scaling the impact through gradual market building and expansion. Others focus on the hybrid organization setup, developing capabilities for conducting skill-building programs for the local people and engaging them across the value chain for value

13

creation. In all cases, creating novel and effective business models is seen as a way not only to create value and realize proper strategic choices, but also to improve performance.

Antecedents of business model innovation in social enterprises

The third main theme is about scientific works focusing on social enterprises' business model innovation. More specifically, regarding this theme two sub-themes emerged: (1) factors triggering business model innovation in social enterprises, and (2) factors determining its success.

Factors triggering business model innovation in social enterprises. Tykkyläinen and Ritala (2021) show that business model innovation can be driven by both internal and external factors. Among the former, we can list the will to promote the company's social mission, the development of new service models and by financial drivers, such as being economically self-sustainable to be able to achieve a social mission. Among the latter, instead, we can place intensive competition, public procurement policies, and polarizing markets. In both cases, each trigger implies a redefinition of the business model toward a new structure able to create value and capture part of it, while producing positive externalities as per Santos (2012): a balance uneasy to generate and thus possible only being particularly creative.

Factors determining the success of business model innovation in social enterprises. Concerning the success of a business model innovation process in social enterprises, Alegre et al. (2016) and De Silva et al., (2021) identified several factors in different domains. Alegre et al. (2016) studied the phenomenon in the domain of work integration social enterprise and found that value proposition, market research, stakeholder involvement, social need and managerial trust on employees are paramount factors for the success of business model innovation. De Silva et al., (2021) pave the way toward a more theoretical study of the phenomenon showing that the unique capabilities of the founders that are vitally important to

14

perceive social challenges as opportunities, and that specific organizational-level capabilities developed and utilized to seize opportunities by combining competing social and economic logics are factors that can determine the success of business model innovation process in social enterprises.

Business model innovation in social enterprises, thus, has to deal with different dimensions and organizational factors, addressing in particular the conflict between economic and social goals. To do this, however, it can rely on the original and creative point of view of their founders and their capabilities to turn social problems "upside-down" seeing them as opportunities.

Future Research on the business model and social enterprise Pair of Streams

As in the social enterprise domain the structure of the business model is strictly related to -and dependent on- the problem that must be solved (Mair, Battilana, & Cardenas, 2012), different sectors could entail different characteristics and components of Battilana and Lee's (2014) hybrid organizing framework. Indeed, we have seen that many different dimensions and levels must be considered when innovating social enterprises' business model, so that the ability to explore unexpected combinations of business model elements becomes paramount. Even more so as each social enterprise has been seen to take its own urge toward action in a very specific way for a very specific purpose in a very specific context, relying on the founders' intuition and creativity.

Future research may thus investigate whether and how different sectors and different problems can entail differences in the business model as a form of hybrid organizing, and in its components, including founder's creative effort (RQ1, RQ2, RQ3, and RQ4; see Table 3).

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Extant research on founder's characteristics as antecedents of business model innovation (Tykkyläinen & Ritala, 2021) and the factors determining the business model innovation success (Alegre & Berbegal-Mirabent, 2016; De Silva et al., 2021) is underdeveloped, despite the large and long-lasting research on the founders' role in the creation and life of a social enterprise (e.g., Seelos & Mair, 2005). Thus, future research should delve into the analysis of the founders' characteristics that are most likely to trigger business model innovation processes (e.g., creativity, identification with the problem addressed by the social enterprise) and, eventually, lead to their success (RQ5). Future research could also investigate some technologies or educational processes aiming at supporting the development of those characteristics by the founder (RQ6).

Business model and AI Creativity Pair of Streams

The analysis of the documents belonging to the business model and AI creativity pair of streams led to the identification of two main themes: a) The role of new technologies in the value creation process (Krotov, 2017; Li, 2020; Tekic & Koroteev, 2019); b) Tools for creation and innovation of business models (Bicen & Johnson, 2015; Eppler et al., 2011).

The Role of New Technologies in the Value Creation Process

The first main theme is about the changes the implementation of new technologies can entail in business models. Scholars in this field found that new technologies and business models is a critical duo for firm's digital transformation strategy (Tekic & Koroteev, 2019), which can be characterized in terms of two dimensions: (1) Level of mastery of digital technologies relevant to the sector in which the company competes (high or low), and (2) level of business model readiness for digital operation (high or low). The results show four

16

digital transformation strategies are summarized using self-explanatory labels such as "disruptive", "business model led", "technology led", and "proud to be analog", and are meant to capture the inner interaction between business model innovation and digital technology adoption.

The same interaction is at the center of the work by Li (2020), who uses multiple-case studies to investigate how digital technologies enable business model innovation processes. First, when digital technologies lead individuals to have ideas that are unprecedented, business model innovation leads to highly innovative results. Second, when a certain technological innovation is applied to domains other from the one where it was born, then digital technologies open the door to business model innovation as adaptation to new contexts. In this case, new technologies allow individuals to realize in a certain domain ideas borrowed from another domain. Third, in some sectors, digital technologies enable the scaling up of a traditional business model by removing conventional barriers. Indeed, business model innovation led by digital technologies is rarely about creating new business models based on unprecedented ideas. In most cases, digital technologies allow firms to deploy a wider range of business models that exist already somewhere else. According to Li (2020), digital technologies also entail new trends in business model innovation, leading to the creation of portfolio business models, which means that, thanks to new technologies, firms can deploy two or more business models simultaneously or sequentially over time.

Along this line, Krotov (2017) proposes two approaches that firms can adopt to create new value propositions focused on new technologies: (1) The bottom-up or sustaining approach, and (2) the visionary or disruptive approach. The former uses new technologies to enhance existing products or services. This approach requires analyzing properties of existing objects and devising new ways for improving existing processes or transactions involving these objects. It is the case of the QR codes apposed on the packaging of products reporting

the products' properties. The consumer can scan the QR code and be provided with the information she needs. The transaction between a situation where the consumer needs information about a product and a situation where the consumer can take a decision based on relevant information can be enhanced by eliminating the extra efforts of information search on the consumer side. In the visionary approach entrepreneurs' inspiration toward new possible business models spurs from the urge to create new value propositions according to certain vision of how the world would be in the future thanks to new technologies. With this vision in mind, the entrepreneur works to realize the new value proposition, creating new models and processes. Krotov (2017: 840) reports the example of the RFID tag on clothing, according to which "if every clothing item has an RFID tag attached to it, then someone can remotely scan the code of a stylish jacket that his or her coworker wears using a smartphone with an RFID reader. Having obtained this code, this person can quickly view the price and other information about this jacket online and even order the jacket right on the spot from Amazon. The coworker whose jacket code was scanned and who, perhaps unknowingly, initiated this transaction, can get a sales commission from Amazon."

Thus, new technologies are paramount for entrepreneurs to offer always new value propositions and innovative value creation processes. However, the availability of appropriate and viable technologies cannot be always taken for granted nor the entrepreneur is always aware or has already been exposed to such tools (Li, 2020; Tekic & Koroteev, 2019). Such possibilities offered by technologies must be "activated" by entrepreneurial imagination geared toward new business models. Therefore, entrepreneurs' visionary and disruptive approaches become paramount, feeding the need to resort on creativity to come up with innovative value propositions (Krotov, 2017).

Tools for Creation and Innovation of business models

18

The second main theme is about a second role new technologies can play in the creation and innovation of business models. Whereas in the first main theme new technologies are considered a trigger of the value creation and its innovation, here they play a different role. They are directly involved in the business model creation and innovation processes as tools that support humans in creating and innovating business models. Along this line, Eppler, Hoffmann, and Bresciani (2011) prove the efficacy of Creativity Support Tools in increasing perceived collaboration among the team members during the innovation of a business model. However, at the same time, the experiment shows that using the Creativity Support Tool decreases participants' level of perceived creativity. On the contrary, Bicen and Johnson (2015) show that a firm that adopts and implements techniques that enhance creativity (i.e., design thinking) can overcome the difficulties related to conditions of resource limitation, being able to engage in radical innovation thanks to the ability of finding more creative ways to manage the available resources.

Evidence about the effect of the use of Creativity Support Tools on entrepreneurs' creativity in creating new business models or innovate the existing ones shows inconsistent results. While the use of Creativity Support Tools decreases humans' perceived creativity (Eppler et al., 2011), the effect is positive under specific circumstances (i.e., when the decision is situated in a condition of resource limitation; Bicen & Johnson, 2015). It is thus crucial to study further the circumstances and conditions in which Creativity Support Tools foster rather than hinder creative thinking about business models.

Future Research on the business model and AI Creativity Pair of Streams

Although the creation and innovation of business models and value proposition is strictly related to the availability of new technologies that help firms to create and deliver values to customers in innovative ways (Li, 2020; Tekic & Koroteev, 2019), sometimes it is

not sufficient to the actual creation and innovation of business models. Indeed, entrepreneurs have to resort on their creativity, wearing the dreamers' glasses, to elaborate new and non-trivial ideas (Krotov, 2017). Entrepreneurs can be supported in performing this task by tools (Eppler et al., 2011) and practices (Bicen & Johnson, 2015) designed to elicit humans' creativity. However, the literature about Creativity Support Tools in the field of creation and innovation of business model is underdeveloped and only partly looks at the new generation of Creativity Support Tools, such as those powered by sophisticated AI systems (Amabile, 2020). Along this line, future research could investigate how AI Creativity Support Tools can be used in the creation and innovation of business models (RQ7). Also, future research could investigate the effect of situational factors and personal attitudes on the effect of the use of AI Creativity Support Tools on the level of creativity and quality of a new business model. The outcome of a task performed by a human in collaboration with an AI Creativity Support Tool can be affected by factors related to the organization (e.g., the type of organization, the sector where it operates, the culture etc.) (RQ8), the AI Creativity Support Tools (e.g., how the AI behaves and interacts with the human, the level of anthropomorphism of AI etc.) (RQ9), and humans' characteristics (e.g., individual's attitude towards the AI, the level of knowledge and familiarity about the AI, how much the individual identifies herself with her firm and job) (RQ10).

Social enterprise and AI Creativity Pair of Streams

The analysis of the documents belonging to the social enterprise and AI Creativity pair of streams led the identification of two main themes: a) Creativity in social enterprises (Teater & Carpenter, 2017); and b) consequences of technological development in social enterprises (Ratten, 2013).

Creativity in social enterprises

Teater and Carpenter (2017) use a qualitative study to show that becoming a social enterprise means also being more creative. Specifically, the level of creativity that is put in place when thinking about how to use the resources and meet the needs of the community is higher in a social enterprise compared to an organization that is fully dependent on local authorities or government. For example, about the use of resources, in a social enterprise peers tend to collaborate more to achieve a common stated objective instead of thinking that some of them are "done to" do that; while concerning meeting the need of the community, being a social enterprise seems to allow creative thinking that helps to solve problems related to reaching clients. This provides evidence of the fact that creativity is a kind of intrinsic characteristic of social enterprises. Therefore, social enterprises could be a good terrain to where to cultivate, raise, and stimulate entrepreneurs' creativity.

Consequences of technological development in social enterprises

The second main theme is about the consequences of technological development in social enterprises. Ratten (2013) proposed a theoretical model to explain how the diffusion of technology enhancing social enterprises' communication with the public (e.g., social media), can foster social enterprises' growth. First, the use of new communication technologies allows social enterprises to reach and get known by a larger audience. Second, the more people share on social networks their interest and involvement in social issues, the higher the number of people exposed to this content, getting engaged in the relative social discourse and eventually behavior. This process could end in a larger number of potential customers for social enterprises. However, while staying ahead with new technologies represents a significant advantage for social enterprises, deciding what technology should be used and how it is not always easy in the context of social enterprises, due to financial constraints and high risk of

mission drift. Indeed, such decisions could require a creative effort by the social entrepreneurs in order to come up with solutions that are efficient but also effective in remaining in line with the social mission of the organization.

Future Research on the social enterprise and AI Creativity Pair of Streams

Literature about social enterprise and AI creativity is still lacking. The available work takes into account the concepts of creativity and technology separately and does not refer to AI specifically. Nevertheless, from our analysis, some connections and valuable interactions emerge between social enterprises and creativity, and between social enterprises and new technologies. This allow us to encourage future research to explore how creativity is defined and perceived in the social enterprise context (RQ11) and how AI creativity can be used to help social entrepreneurs in understanding what are the best technologies to implement in their social enterprises and how (RQ12).

AI and Creativity Support Tool Pair of Streams

The analysis of the documents belonging to the AI and Creativity Support Tool pair of streams led to the identification of three main themes: a) Factors affecting creativity (e.g., Al Hashimi, Al Muwali, Zaki, & Mahdi, 2019; Hall, Stickler, Herodotou, & Iacovides, 2021; Yang et al., 2018); b) creativity construct development and validation (Cherry & Latulipe, 2014); c) testing of Creativity Support Tools (Clark, Ross, Tan, Ji, & Smith, 2018; Frich, MacDonald Vermeulen, Remy, Biskjaer, & Dalsgaard, 2019; Koch et al., 2019).

Factors Affecting Creativity

The first main theme is about the factors affecting creativity in context where the user interacts with a Creativity Support Tool to create an output. From the analysis of this main

22

theme, three sub-themes emerged: (1) Direct antecedents of creativity, (2) indirect antecedents of creativity, (3) moderators of creativity.

Direct antecedents of creativity. There are three types of direct antecedents: Individual-related, tool-related, and task-related. About the individual-related antecedents, Lewis et al. (2011) shows that positive affect increases the level of creativity of an output created with Creativity Support Tools. Muldner and Burleson (2015) discovered that people's innate level of creativity can be detected by measuring biometric indicators, using eye tracking and skin conductance and electroencephalography. Among the tool-related antecedents, research has identified users' cognitive load (Pacauskas & Rajala, 2017), how much the Creativity Support Tool is immersive (Yang et al., 2018), the engaging visual appearance, and the possibility of sharing and liking contents (Al Hashimi et al., 2019). In the gaming domain, the degree of flexibility of the game structure, narrative, exploration, extent and diversity of game variables, opportunities for content creation, environmental interaction and exploration, avatar customization, are factors that stimulate gamers' creativity (Hall et al., 2021). About the task-related antecedents, Pacauskas and Rajala (2017) identified the extent to which the task a person has to perform is able to make the person enter into a state of flow, meaning that human creativity is enhanced when a person enters into a state of flow.

Indirect antecedents of creativity. There are two types of indirect antecedents: Tool related, and task related. Both types of antecedents have been identified by Pacauskas and Rajala (2017). The tool-related antecedent is the ease of use of the tool. They found that it positively influences creative performance through reducing users' cognitive load during the task performance. The task-related antecedent is task-related challenges (i.e., how much a task is challenging for the user), and it positively influences creative performance by increasing the flow experience.

Moderators of Creativity. Chung et al. (2015) show that employees using enterprise mobile applications can perform tasks in a more creative way, but also that this effect persists under a specific condition, i.e. organizational agility. This means that the more an organization is able to efficiently and effectively respond to changes from the firm's external environment (e.g., markets and customers) and detect and seize market opportunities with speed and surprise, the more employees will be creative in performing tasks with enterprise mobile applications.

Creativity Construct Development and Validation

The third main theme is about the development and validation of a construct representing how well a tool can support humans' creativity. Cherry and Latulipe (2014) developed the Creativity Support Index (CSI), which is a psychometric survey designed for evaluating the ability of a Creativity Support Tool to assist a user engaged in creative work. CSI is composed of six dimensions: Exploration, Expressiveness, Immersion, Enjoyment, Results Worth Effort, and Collaboration.

Testing of Creativity Support Tool

The third main theme is about works testing the efficacy of Creativity Support Tools. The adoption of Creativity Support Tools is very diffused in organizations (Gabriel, Monticolo, Camargo, & Bourgault, 2016) and among the public (Frich et al., 2019), across several industries. Therefore, a plethora of works have tested and proved the efficacy of Creativity Support Tools in increasing users' creativity in different industries, such as the art industry (Davis et al., 2016; Shugrina et al., 2017; Siangliulue, Chan, Dow, & Gajos, 2016), the gaming industry (Lucas & Martinho, 2017), writing industry (Clark et al., 2018), and design industry (Koch et al., 2019).

24

Future Research on the AI and Creativity Support Tool Pair of Streams

Although literature about AI and Creativity Support Tools has deeply investigated factors influence creativity (e.g., Al Hashimi et al., 2019; Hall et al., 2021; Pacauskas & Rajala, 2017), research about the combined effect of such factors on creativity is underdeveloped. Therefore, future research should investigate the effect of combinations of antecedents of different type on the level of creativity of the output produced by human who collaborate with Creativity Support Tool (RQ13). To do so, scholars should use experiments, enriching extant literature also from a methodological perspective. Also, future research should investigate new possible creativity antecedents related to AI specific features. In human-computer interactions literature, AI and computers more in general are often studied as social actors as they are provided with anthropomorphic cues (Feine, Gnewuch, Morana, & Maedche, 2019; Nass & Moon, 2000; Nass, Moon, Fogg, Reeves, & Dryer, 1995; Reeves & Nass, 1996), also they are perceived as a black box (Rai, 2020). Such features influence human behavior and the way humans interact with AI (Cadario, Longoni, & Morewedge, 2020; Novak & Hoffman, 2019; Tomaino, Abdulhalim, Kireyev, & Wertenbroch, 2020). Along these lines, we suggest that such features could have an influence also on the quality and level of creativity of the output produced by humans that collaborate with AI Creativity Support Tools. Therefore, future research should investigate whether, how and under what conditions such features affect the quality and the level of creativity of the output (RQ14, RQ15, RQ16). The specific features of AI can also inspire future research about new constructs to measure how well a AI Creativity Support Tool can support humans' creativity, complementing and expanding the CSI already available in the literature (Cherry & Latulipe, 2014) (RQ17).

DISCUSSION AND AGENDA FOR FUTURE RESEARCH ON CREATING SOCIAL ENTERPRISES' BUSINESS MODELS USING AI CREATIVITY SUPPORT TOOLS

Discussion

Two main findings emerge. The first result relates to the state of the art of research about each of the three streams of literature (i.e., business model, social enterprise, and AI Creativity Support Tools). Indeed, our paper offers an up-to-date report of what has been studied form the 2010 to today about business models, social enterprises, and AI Creativity Support Tools. Moreover, it also provides a systematization of the several contributions analyzed, offering a categorization divided into main themes and sub-themes.

The second result the paper brings about is the consideration that, today, despite the richness of the management literature about business model innovation, social enterprise and AI Creativity Support Tools, the acknowledged ability of AI Creativity Support Tools in facilitating individuals when performing challenging and creative tasks, and the complexity of creating and innovating social enterprises' business models, the three streams of research have never been investigated together from a perspective of using AI Creativity Support Tools to create new and innovative business models for social enterprises. From our review, however, we have seen that AI Creativity Support Tools can be relevant tools to foster creativity, and thus should be considered when challenging creative activities -such as those implied by business model innovation for social enterprises- are in place.

Agenda for Future Research on Creating social enterprises' business models Using AI Creativity Support Tools

26

In this final section, we go beyond the three pairs of streams to identify additional future research questions in an overarching area: interrelationships among the three pairs of streams. These additional research questions are also included in Table 3.

As it happens in the creative industry and in the innovation of for-profit organizations' business models, where designers and entrepreneurs use and interact with AI Creativity Support Tools to create creative outputs (Eppler et al., 2011; Li, 2020), social entrepreneurs could use and interact with AI Creativity Support Tools to create and innovate the business model of social enterprises. Future research should investigate whether using such AI Creativity Support Tools is effective in the creation and innovation of business models in the social enterprise context (RQ18), the mechanism through which the use of AI Creativity Support Tools affects the level of creativity and quality of the new business model (RQ19), and under what conditions (e.g., social entrepreneurs' characteristics, tool's characteristics, type of social enterprise) this effect persists or vanishes (RQ20).

The positive effect of Creativity Support Tools in the creation of innovative business models has been proven in part also by Eppler, Hoffmann, and Bresciani (2011). According to them, on one hand, using Creativity Support Tools increases perceived collaboration among the team members when trying to innovate a business model. On the other hand, however, using Creativity Support Tools decreases participants' level of perceived creativity. The authors tested the efficacy of an old-fashioned Creativity Support Tools whose computational, creative, and interactive abilities are underdeveloped compared to today's AI Creativity Support Tools. As also noted by Amabile (2020), the AI has developed specific characteristics that lead individuals to perceive it as a partner or a servant, but also a negative presence that might substitute individuals, stealing their job. Future research should investigate whether the social role played by AI Creativity Support Tools (e.g., partner, servant, enemy) affects the level of creativity and quality of the new business models created

27

through the interaction between social entrepreneurs and AI Creativity Support Tools (RQ21)

and what are the underlying mechanisms explaining such effects (RQ22).

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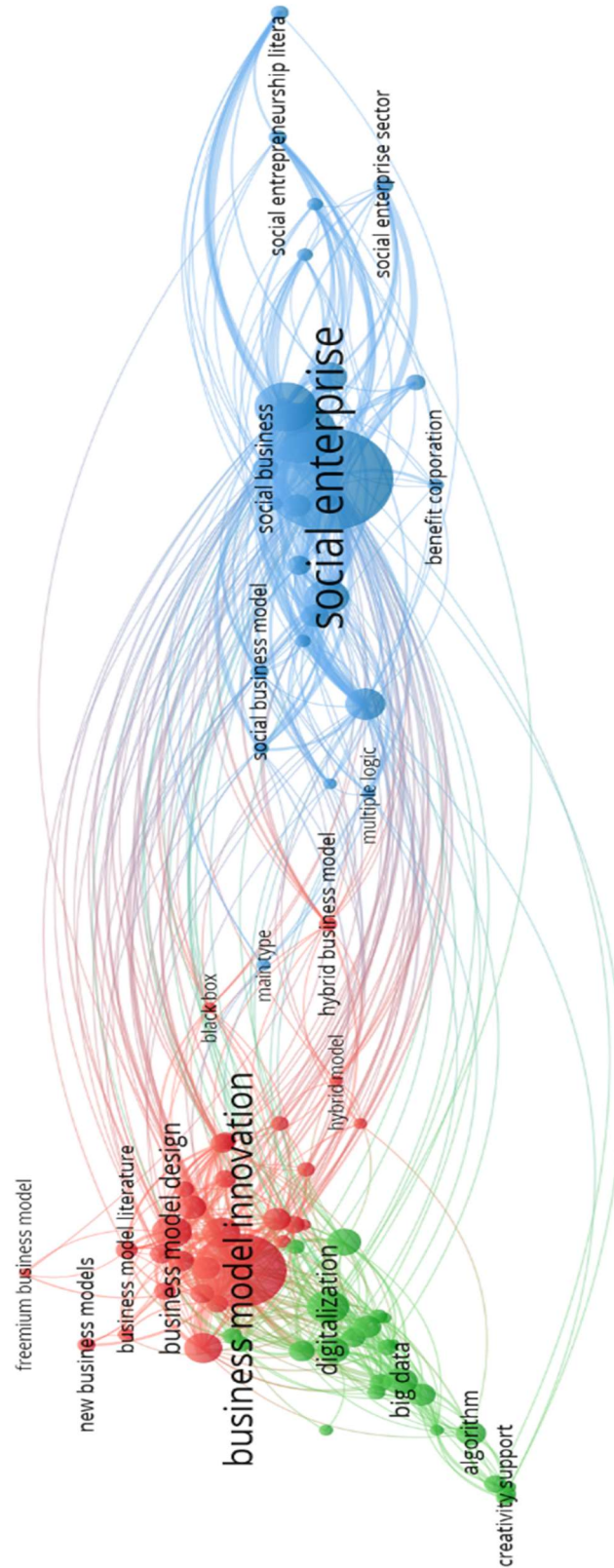
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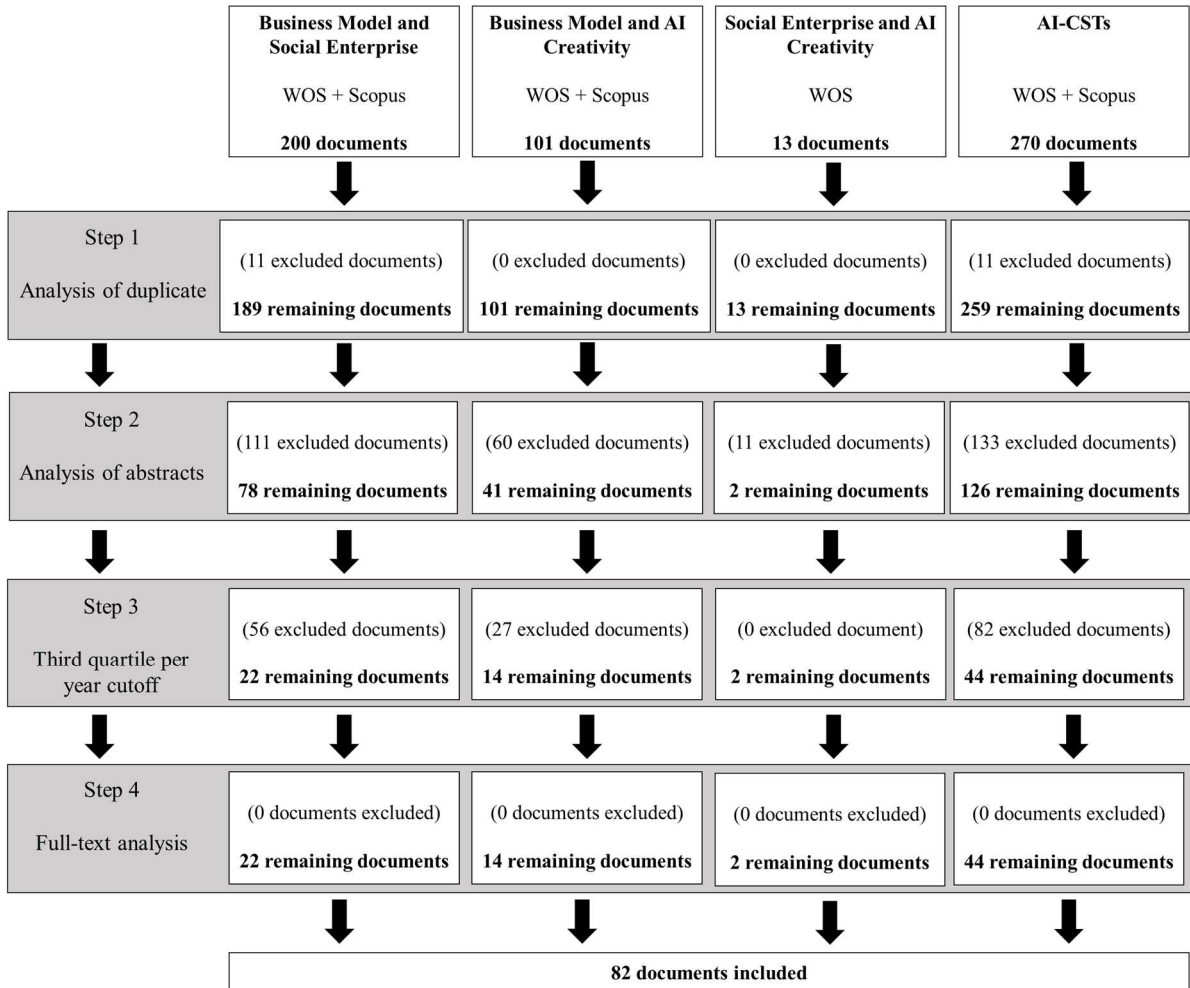
FIGURE 1

Bibliometric map based on keywords of business models, social enterprises and AI

Creativity Support Tools.

FIGURE 2

Document selection process and number of documents included.

	Business Model and Social Enterprise WOS + Scopus **200 documents**	Business Model and AI Creativity WOS + Scopus **101 documents**	Social Enterprise and AI Creativity WOS **13 documents**	AI-CSTs WOS + Scopus **270 documents**
Step 1 Analysis of duplicate	(11 excluded documents) **189 remaining documents**	(0 excluded documents) **101 remaining documents**	(0 excluded documents) **13 remaining documents**	(11 excluded documents) **259 remaining documents**
Step 2 Analysis of abstracts	(111 excluded documents) **78 remaining documents**	(60 excluded documents) **41 remaining documents**	(11 excluded documents) **2 remaining documents**	(133 excluded documents) **126 remaining documents**
Step 3 Third quartile per year cutoff	(56 excluded documents) **22 remaining documents**	(27 excluded documents) **14 remaining documents**	(0 excluded document) **2 remaining documents**	(82 excluded documents) **44 remaining documents**
Step 4 Full-text analysis	(0 documents excluded) **22 remaining documents**	(0 documents excluded) **14 remaining documents**	(0 documents excluded) **2 remaining documents**	(0 documents excluded) **44 remaining documents**

82 documents included

TABLE 1

Search on Scopus and Web Of Science.

Streams of literature	Database	Query	Results (total number of documents)
Business model and social enterprise	Web Of Science	TOPIC: ("business model*" OR "business model innovat*" OR "organizational desig*" NOT "modeling" NOT "computatio*" NOT "cloud") AND TOPIC: ("hybrid organiz*" OR "social enterpris*" NOT "non-profi*" NOT "no profi*") Refined by: PUBLICATION YEARS: (2021 OR 2017 OR 2013 OR 2020 OR 2016 OR 2012 OR 2019 OR 2015 OR 2011 OR 2018 OR 2014 OR 2010) AND DOCUMENT TYPES: (ARTICLE OR PROCEEDINGS PAPER) AND WEB OF SCIENCE CATEGORIES: (BUSINESS OR MANAGEMENT OR SOCIAL ISSUES OR SOCIAL WORK OR SOCIAL SCIENCES INTERDISCIPLINARY) Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC	151
	Scopus	(TITLE-ABS-KEY(business model*, OR business model innovat*, OR desig*, AND NOT modeling, AND NOT computatio*, AND NOT cloud) AND TITLE-ABS-KEY(hybrid*, OR hybrid organiz*, OR social enterpris*, AND NOT non-profi*, AND NOT no profi*)) AND (LIMIT-TO (SUBJAREA,"BUSI") OR LIMIT-TO (SUBJAREA,"SOCI") OR LIMIT-TO (SUBJAREA,"COMP")) AND (EXCLUDE (PUBYEAR,2009) OR EXCLUDE (PUBYEAR,2001) OR EXCLUDE (PUBYEAR,1988))	49
Business model and AI creativity	Web Of Science	TOPIC: ("business model*" OR "business model innovat*" OR "organizational desig*" NOT "modeling" NOT "computatio*" NOT "cloud") AND TOPIC: ("ai" OR "artificial intelligenc*" OR "technolog*") AND TOPIC: ("creativ*" OR "creative thinking" OR "creative problem solv*") Refined by: [excluding] PUBLICATION YEARS: (2009 OR 2003 OR 2008 OR 2001 OR 2007 OR 2000 OR 2006 OR 1999 OR 2005 OR 1998 OR 2004 OR 1993) AND WEB OF SCIENCE CATEGORIES: (MANAGEMENT OR BUSINESS OR COMPUTER SCIENCE ARTIFICIAL INTELLIGENCE OR COMPUTER SCIENCE INTERDISCIPLINARY APPLICATIONS) AND DOCUMENT TYPES: (ARTICLE OR PROCEEDINGS PAPER) Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.	100

	Scopus	(TITLE-ABS-KEY (business AND model*, OR business AND model AND innovat*, OR desig*, AND NOT modeling, AND NOT computatio*, AND NOT cloud) AND TITLE-ABS-KEY (ai, OR artificial AND intelligenc*, OR technolog*) AND TITLE-ABS-KEY (creativ*, OR creative AND thinking, OR creative AND problem AND solving))	1
Social enterprise and AI creativity	Web Of Science	TOPIC: ("social enterpris*" OR "hybrid organiz*" NOT "non-profi*" NOT "no profi*") AND TOPIC: ("ai" OR "artificial intelligenc*" OR "technolog*") AND TOPIC: ("creativ*" OR "creative thinking" OR "creative problem solv*") Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.	13
	Scopus	(TITLE-ABS-KEY (hybrid*, OR hybrid AND organiz*, OR social AND enterpris*, AND NOT non-profi*, AND NOT no AND profi*) AND TITLE-ABS-KEY (ai, OR artificial AND intelligenc*, OR technolog*) AND TITLE-ABS-KEY (creativ*, OR creative AND thinking, OR creative AND problem AND solving))	0
AI-based Creativity Support Tools	Web Of Science	TOPIC: ("artificial intelligence" OR "ai" OR "computational" OR "digital" OR "technolog*") AND TOPIC: ("creativity support too*" OR "creativity suppor*" OR "support creativ*" OR "human-assisted computer intelligence")Refined by: PUBLICATION YEARS: (2021 OR 2014 OR 2020 OR 2013 OR 2019 OR 2012 OR 2018 OR 2011 OR 2017 OR 2010 OR 2016 OR 2015) AND DOCUMENT TYPES: (PROCEEDINGS PAPER OR ARTICLE) Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.	196
	Scopus	(TITLE-ABS-KEY (creativity AND support AND too*, OR creativity AND suppor*, OR support AND creativ*, OR human-assisted AND computer AND intelligence) AND TITLE-ABS-KEY (ai, OR artificial AND intelligenc*, OR technolog*, OR computational, OR digital)) AND (LIMIT-TO (DOCTYPE , "cp") OR LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "COMP") OR LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ARTS") OR LIMIT-TO (SUBJAREA , "PSYC") OR LIMIT-TO (SUBJAREA , "ENVI") OR LIMIT-TO (SUBJAREA , "HEAL") OR LIMIT-TO (SUBJAREA , "NEUR") OR LIMIT-TO (SUBJAREA , "ENER") OR LIMIT-	74

37

		TO (SUBJAREA , "MEDI")) AND (LIMIT- TO (PUBYEAR , 2021) OR LIMIT- TO (PUBYEAR , 2020) OR LIMIT- TO (PUBYEAR , 2019) OR LIMIT- TO (PUBYEAR , 2018) OR LIMIT- TO (PUBYEAR , 2017) OR LIMIT- TO (PUBYEAR , 2016) OR LIMIT- TO (PUBYEAR , 2015) OR LIMIT- TO (PUBYEAR , 2014) OR LIMIT- TO (PUBYEAR , 2013) OR LIMIT- TO (PUBYEAR , 2012) OR LIMIT- TO (PUBYEAR , 2011) OR LIMIT- TO (PUBYEAR , 2010))	
Total number of documents			584

TABLE 2

Main themes, sub-themes and references for each pair of streams.

Pair of streams	Main theme	Sub-theme		Reference
Business model and social enterprise	Defining the borders of business hybrids	Hybrid organizing in a specific area		Svensson, and Seifried (2017)
		Categorizations of hybrid organizations and social enterprises		Kolk, and Lenfant (2016); Santos et al., (2015)
	social enterprises' business models and strategic choices	Value drivers of social enterprises' business models		(Spieth et al., 2019)
		Strategic choices to become a social enterprise		Schneider and Clauss (2020); Ko and Liu (2021)
		Strategic choices to improve social enterprise performances		Goyal et al. (2017)
	Antecedents of business model innovation in social enterprises	Factors triggering business model innovation in social enterprises		Tykkyläinen and Ritala (2021)
		Factors determining the success of business model innovation in social enterprises		De Silva et al., (2021); Alegre et al. (2016)
Business model and AI creativity	The role of new technologies in the value creation process	-		Li (2020); Tekic, and Koroteev (2019); Krotov (2017)
	Tools for creation and innovation of business models	-		Eppler, Hoffmann, and Bresciani (2011); Bicen and Johnson (2015)
Social enterprise and AI Creativity	Creativity in social enterprises	-		Teater and Carpenter (2017)
	Consequences of technological development in social enterprises	-		Ratten (2013)
AI and Creativity Support Tools	Factors affecting creativity	Direct antecedents of creativity	Individual related	Lewis et al. (2011); Muldner and Burleson (2015)
			Tool related	Pacauskas and Rajala (2017); Yang et al. (2018); Hall et al. (2021); Al Hashimi et al. (2019)
			Task related	Pacauskas and Rajala (2017)
		Indirect antecedents of creativity	Tool related	Pacauskas and Rajala (2017)
			Task related	
		Moderators of creativity	-	Chung et al. (2015)
	Creativity construct development and validation	-		Cherry and Latulipe (2014)
	Testing of Creativity Support Tools	-		Gabriel et al. (2016); Frich et al. (2019); Davis et al. (2016); Siangliulue et al. (2016);

39

			Shugrina et al. (2017); Lucas and Martinho, (2017); Clark et al. (2018); Koch et al. (2019)

TABLE 3

Creating social enterprises' business models using AI Creativity Support Tools: Emerging research questions.

Pair of streams	Research questions by pair of streams	Research questions about creating social enterprises' business models using AI Creativity Support Tools
Business model and social enterprise	RQ1: How does the sector where a social enterprise operates affect the form and components of its business model? RQ2: How does the sector where a social enterprise operates affect its founders' effort to create or innovate the social enterprise business model? RQ3: How does the problem a social enterprise aims to address and solve affect the form and components of its business model? RQ4: How does the problem a social enterprise aims to address and solve affect its founders' effort to create or innovate the social enterprise business model? RQ5: What are the founders' characteristics that can trigger business model innovation in social enterprises? RQ6: What are possible interventions to instill or improve founders' characteristics that can help him/her in developing successful business model innovation processes in social enterprises?	RQ18: Does the use of AI Creativity Support Tools affect the level of creativity and quality of new social enterprises' business models? RQ19: How does the use of AI Creativity Support Tools affect the level of creativity and quality of new social enterprises' business models? RQ20: Under what conditions does the use of AI Creativity Support Tools affect the level of creativity and quality of new social enterprises' business models? RQ21: Does the social role played by AI Creativity Support Tools (e.g., partner, servant, enemy) affect the level of creativity and quality of the new business models created through the interaction between social entrepreneurs and AI Creativity Support Tools? RQ22: How does the social role played by AI Creativity Support Tools (e.g., partner, servant, enemy) affect the level of creativity and quality of the new business models created through the interaction between social entrepreneurs and AI Creativity Support Tools?
Business model and AI Creativity	RQ7: How AI Creativity Support Tools can be used in the creation and innovation of business models? RQ8: Do organizations' characteristics (e.g., the type of organization, the sector where it operates, the culture etc.) affect the relationship between the use of AI Creativity Support Tools and the level of creativity and quality of the new business models? RQ9: Do AI Creativity Support Tools' characteristics (e.g., how the AI behave and interact with the human, the level of anthropomorphism of the AI etc.) affect the relationship between the use of AI Creativity Support Tools and the level of creativity and quality of the new business models?	

	RQ10: Do humans' characteristics (e.g., how much the individual loves or hates AI, level of knowledge and familiarity about AI, how much the individual identify herself with the firm etc.) affect the relationship between the use of AI Creativity Support Tools and the level of creativity and quality of the new business models?
Social enterprise and AI Creativity	RQ11: How is creativity defined and perceived in the social enterprise context? RQ12: How can creativity be used to help social entrepreneurs in understanding what technologies to implement in their social enterprises and how to do that?
AI and CSTs	RQ13: What is the effect of a combination of different factors influencing creativity (e.g., individual-related factors and tool-related factors) on the level of creativity of the output? RQ14: Do specific AI features (e.g., anthropomorphic cues, being perceived as a black box) influence the quality and level of creativity of the output create by a human in collaboration with a Creativity Support Tool? RQ15: How do specific AI features (e.g., anthropomorphic cues, being perceived as a black box) influence the quality and level of creativity of the output create by a human in collaboration with a Creativity Support Tool? RQ16: Under what conditions do specific AI features (e.g., anthropomorphic cues, being perceived as a black box) influence the quality and level of creativity of the output create by a human in collaboration with a Creativity Support Tool? RQ17: How to develop a CSI to be a more comprehensive conceptualization of how well an AI Creativity Support Tool can support humans' creativity?