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ORIGINAL PAPER

Developing a measurement scale of corporate socially responsible entrepreneurship in sustainable management

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Abstract

Two important lines of research come together in this paper: entrepreneurship and corporate social responsibility (CSR). Both stand out for their ability to contribute to sustainable development and generate competitive and social advantages. This study combined both approaches under the concept of CSR entrepreneurship (CSRE). A scale was developed to assess corporate socially responsible entrepreneurs' traits in corporate contexts (i.e., CSRE-s). This quantitative measurement instrument was initially composed of 84 items, which were subjected to various validity and reliability tests. Exploratory factor and confirmatory factor analyses were conducted to identify the most significant determinant variables of individuals engaging in CSRE. The validated CSRE-s indicates that the corporate socially responsible entrepreneurship construct involves 6 entrepreneurship factors and 3 CSR dimensions—environmental, social, and economic—with 2 factors each (i.e., 6 factors), assessed by a total of 76 items. This research's main contribution is the identification of CSRE features in entrepreneurs that together constitute an original, unique, and innovative framework for a sustainable development approach to entrepreneurship. The proposed conceptual model can be used to ensure the CSR values validated for the CSRE-s are incorporated into entrepreneurial training programs (i.e., universities), the public sector's policies promoting entrepreneurship, and strategic business plans for expansion via entrepreneurship. The CSRE-s can be used to strengthen these three areas simultaneously, which should provide social advantages to all stakeholders via the sustainable management of entrepreneurial projects.

Keywords Entrepreneurship · Corporate social responsibility · Exploratory factor analysis · Confirmatory factor analysis · Spain

JEL Classification L26 · M10 · M14

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1 Introduction

Entrepreneurship plays a key role in sustainable, inclusive growth in current business contexts (European Commission 2001, 2010) because entrepreneurship affects macroeconomic variables such as gross domestic products (Autio et al. 2013), making it an important way to achieve economic growth (Audretsch 2009; Lv et al. 2021). Other significant benefits besides financial value creation are producing value with fewer resources to help preserve the environment, generating employment, and ensuring all individuals' well-being (Hanohov and Baldacchino 2017; Alonso and Austin 2018; Sarango-Lalangui et al. 2018; Anand et al. 2021). Varied authors also argue that entrepreneurship can become a catalyst for economic development (Costa e Silva et al. 2021), as well as being a valuable approach to operating at the community level (Gallardo-Vázquez et al. 2020) and attracting politicians' attention due to entrepreneurship's ability to generate start-ups and self-employment (De Brito and Leitão 2020).

In addition, entrepreneurship has been linked to sustainable growth given its contribution to products with a potential for substantial success in new markets focused on social change (Schaltegger and Wagner 2011; Anand et al. 2021). The existing literature highlights the link between entrepreneurship and sustainability (Hart and Milstein 1999), providing evidence of novel business opportunities and entrepreneurs' innovative ways of seeking to build up the environment, reduce negative impacts, and include these objectives in their activities (Choi and Gray 2008; Gast et al. 2017; Muñoz et al. 2018). As a result, sustainable entrepreneurship is a growing field of research (Gast et al. 2017; Muñoz et al. 2018).

Entrepreneurs seek to integrate these approaches to value creation and to promote social cohesion and welfare by carrying out activities based on business models focused on corporate social responsibility (CSR) (Miklian and Medina Bickel 2020). Entrepreneurship is thus associated with solving social problems through technological innovation (Zahra and Wright 2016), which implies considering social responsibility issues when selecting business opportunities (Shane and Venkataraman 2000). Innovation engages entire communities in change processes and begins with the identification of community needs (Scharmer and Kaufer 2013; Lv et al. 2021), while educational organizations contribute to innovation's positive effect on economic growth (Barkhordari et al. 2019).

Entrepreneurial activities transform both markets and society at large (Wadhwani et al. 2020; Joseph et al. 2022). The benefits generated include, among others, poverty reduction and communities' renovation (Joseph et al. 2022). However, creating effective, successful companies is not enough as entrepreneurs need to embody fundamental values and beliefs, concentrate on what is important, build businesses oriented toward satisfying all relevant interest groups' needs, highlight their services' importance to society, and link sustainability goals, business operations, and values (Zu 2019). The current approach to sustainable development is based on the triple bottom line of twenty-first century firms, which combines three main objectives: (1) humanity's long-term survival (i.e., social), (2) economy growth, and (3) preservation of the environment (Elkington 1997).

Thus, including CSR is an important issue that many business models seek to address. The triple bottom line perspective must be continually integrated into entrepreneurship (Belz and Binder 2017; Anand et al. 2021).

Prior research has confirmed that a link exists between companies' CSR strategies and sustainable development based on the practical implementation of the United Nations' Sustainable Development Goals (SDGs), which creates both opportunities and challenges for business managers seeking to generate socioeconomic value (Stawicka 2021). Long-term CSR strategies combined with a strong commitment to sustainable development have been shown to help firms survive during economic downturns (Mattera et al. 2021). According to Bouncken and Kraus (2022), entrepreneurship ecosystems are also essential to successful launches of start-ups within markets marked by competition with large established companies, as these ecosystems facilitate the incorporation of other governance mechanisms to improve company performance while considering social aspects. Entrepreneurship and CSR can, therefore, be combined through governance.

Knowledge economy and behavioral economics studies indicate that CSR analyses should focus on identifying corporate socially responsible entrepreneurs' features, examining value creation in the knowledge economy, and assessing civil society, academia, industries, and governments' engagement (Carayannis and Grigoroudis 2016). From a knowledge economy perspective, academic scholars act as mediators when they fill existing research gaps that prevent the achievement of necessary social objectives. Various authors have found that social and institutional actors and economic and operational factors can build barriers to entrepreneurship, as do cognitive and psychological variables related to knowledge, lifestyle, growth, and well-being (Khanin et al. 2022a, b). These challenges underline the importance of deepening the current understanding of and theories about entrepreneurship.

Researchers' findings have contributed to expanding the existing knowledge about entrepreneurship from different perspectives and theories (Lv et al. 2021; Fernandes and Ferreira 2022). Two main economic reasons have been found for individuals' interest in entrepreneurship: its capacity for enhancing economic growth and the need to integrate entrepreneurial expansion into the current concept of sustainable economic development (i.e., business activities' impact on societies). The orthodox view of businesses' main goal has comprised maximizing value for shareholders, but this model has given way to a combination of economic and social values that generates both business and societal benefits (Porter and Kramer 2003). This approach implies that more stakeholders' interests need to be considered (Canyelles 2011).

Entrepreneurs show great potential in terms of developing CSR strategies based on their companies' internal and external environments (Blanco-González et al. 2021). Internal CSR (ICSR) entails looking within the organization (Aguilera et al. 2007; Cavazotte and Chang 2016; Mory et al. 2016; Hoang et al. 2020; Tran et al. 2021) and considering not only the owners' welfare but also those of their employees. In contrast, external CSR (ECSR) determines how much attention is paid to other stakeholders, including society at large. Empirical research has confirmed that firms with higher CSR levels are better able to sustain efficient processes during crises, reducing the latter's negative effects on profitability and sales growth due to

a focus on all stakeholders' welfare, which ensures these companies can more easily adjust their operating margin and avoid unnecessary risk (Epure 2022).

In line with the extant literature, the present study posited that CSR entrepreneurship (CSRE) combines two aspects: entrepreneurs' personal behavioral traits as confirmed by behavioral economic research and an awareness that social responsibility must be applied to their business models. Within entrepreneurial behavior, business success is achieved by making decisions about products, markets, customer orientation, financial capacities, risk management, and/or business culture (Picken 2017), among other behaviors. Differences in organizational culture explain variations in the management of variables (e.g., salaries) or decisions about which assets to maintain, which in turn have a measurable effect on economic efficiency (Díaz and Sanchez-Robles 2022). Some authors have identified essential skills, such as communication, personal initiative, and planning (Prüfer and Prüfer 2020), because inadequately applied soft managerial skills can endanger companies' success (Bednár and Tarišková 2017). Thus, the literature on success in entrepreneurial ecosystems includes work teams (Berkus 2006; Gross 2015) and chief executive officers' (CEOs) decision-making strategies, among other key success factors (Sevilla-Bernardo et al. 2022).

Currently, lists of entrepreneurs' personal characteristics—whether as a team member or as a CEO—should include social responsibility, but this trait is not always mentioned. Academics need to focus on identifying corporate socially responsible entrepreneurs' characteristics, thereby expanding the existing knowledge about these individuals and thus to sustainable economic development models. Using the corporate socially responsible entrepreneur approach, researchers can provide answers to questions that all entrepreneurs should ask themselves when implementing CSR practices at the start of any business activity. Previous investigations have isolated personal traits related to behavior toward entrepreneurship and characteristics related to CSR's application, while other studies have verified individual measures of characteristics associated with both CSR behavior (Abbott and Monsen 1979; Turker 2009; Gallardo-Vázquez et al. 2013; Gallardo-Vázquez and Sánchez-Hernández 2014a; Mory et al. 2016; Moneva-Abadía et al. 2018) and behavior connected with entrepreneurship (Dyduch 2008; Blesa et al. 2009; Cardon et al. 2013).

Gaps can be found in the literature related to different measurement scales' theoretical framework, which separately assess traits related to CSR behavior and entrepreneurial behavior in corporate socially responsible entrepreneurs. Researchers acknowledge that an entrepreneurial temperament causes these individuals to present characteristics similar to traits connected with CSR behavior (e.g., environmental concern, a focus on employee well-being, or an urge to respond to social demands). Given the current emphasis on sustainability, more businesses also need to combine entrepreneurship and CSR to survive, create differentiation, and respond to new social challenges.

In addition, assessing both CSR and entrepreneurship traits involves latent variables whose scales must be composed of indicators to quantify these characteristics through respondents' individual self-perceptions. Studies cannot merely add up the results of two measurement scales—one of CSR traits and the other of entrepreneurship features—which is not the same as measuring corporate socially

responsible entrepreneurs' characteristics and which will not produce the same outputs. CSR and entrepreneurship certainly share aspects that can be measured, but these concepts also differ in other ways that, although closely related, focus on different objectives, as explained below in the theoretical framework development. The gaps in the literature thus include the absence of a combined measurement instrument to assess corporate socially responsible entrepreneurs' traits as these individuals present a unique combination of CSR and entrepreneurship characteristics, which means multiple significant aspects need to be grouped into key constructs.

The present research, therefore, concentrated on identifying the most important traits of corporate socially responsible entrepreneurs. Given the absence of specific measures that assess this type of entrepreneur's characteristics, the following research question (RQ) was formulated:

RQ: How can a measurement scale that integrates CSR and entrepreneurship characteristics be designed in order to identify corporate socially responsible entrepreneurs?

That is, the main goal was to determine the mix of CSR and entrepreneurial traits that occurs when individuals are not only entrepreneurs but also someone who engages in CSRE. Even more importantly, this study sought to develop specific measures of these individuals' characteristics, namely, the CSRE-s scale.

The following secondary RQs (SRQs) were linked to this objective and based on a review of previous research. The extant literature discusses varied aspects of the relationship between entrepreneurship and CSR, but the aspects highlighted below reflect the findings most directly linked to the SRQs. The business opportunities at the heart of entrepreneurship are combined with a socially responsible approach when individuals apply CSR strategies to their businesses to ensure sustainability. The literature on this topic (Choi and Gray 2008; Schaltegger and Wagner 2011; Gast et al. 2017; Muñoz et al. 2018; Anand et al. 2021) was the basis for this study's first SRQ:

SRQ1: Do entrepreneurs who engage in CSRE know how to look for socially responsible opportunities?

Many scholars argue that employees should be considered stakeholders, so a new approach to the employee-employer relationship is needed to reflect CSR values. This approach also has to be included in CSRE because entrepreneurial labor relations require novel, dynamic management practices that involve employees in innovative processes. Based on various prior studies (Hanohov and Baldacchino 2017; Alonso and Austin 2018; Sarango-Lalangui et al. 2018; De Brito and Leitão 2020; Anand et al. 2021), the present research's second SRQ was worded as follows:

SRQ2: Do entrepreneurs involved in CSRE take good care of their employees?

The environment is treated as a part of entrepreneurship because entrepreneurial relationships regard the surrounding settings as a vital part of business development, and environmental considerations are also incorporated in CSR values when entrepreneurs seek to address different parties' interests. The debate continues about which conditions affect entrepreneurs who apply the CSRE approach (Aguilera et al. 2007; Cavazotte and Chang 2016; Mory et al. 2016; Hoang et al. 2020; Blanco-González et al. 2021; Tran et al. 2021), which led to the current study's third SRQ:

SRQ3: Do entrepreneurs engaged in CSRE adapt to their surrounding circumstances?

The CSR approach to social and economic values can also be incorporated into entrepreneurship as these require improvements in how business processes are managed in response to demands for social benefits. This component of sustainability appears in the creation of socioeconomic values based on responsible management. Given the extant literature on this subject (Porter and Kramer 2003; Gallardo-Vázquez et al. 2020; Stawicka 2021), the fourth SRQ formulated for the present research was as follows:

SRQ4: Do entrepreneurs involved in CSRE implement adequate work-life balance policies?

Companies' approach to products has also been explored by scholars as an essential part of CSR. This aspect is important to CSRE because firms should offer products that meet societies' new needs, which necessarily expands the idea of product quality. Based on academics' prior discussions (see Schaltegger and Wagner [2011] and Anand et al. [2021]), the current study included a fifth SRQ:

SRQ5: Do entrepreneurs engaged in CSRE provide goods and services of sufficient quality?

The existing literature provides evidence of CSR's contribution to reducing environmental impacts when companies consider pro-environmental values in their business strategies. These principles usually increase corporations' awareness of their ecological footprint, pushing them to improve their business performance via greater efficiency (Sanchez-Robles et al. 2022). Environmental values connect with entrepreneurship when start-ups arise in response to different stakeholders' environmental demands (Choi and Gray 2008; Gast et al. 2017; Muñoz et al. 2018). These findings were incorporated into the present research through the last SRQ:

SRQ6: Do entrepreneurs involved in CSRE plan investments that consider environmental impacts?

This study, therefore, filled an important gap in the existing knowledge about corporate socially responsible entrepreneurs' traits by designing and testing a measurement instrument that included CSR and entrepreneurship variables to assess this

type of entrepreneur's behavior. The CSRE-s initially included 84 items based on the extant literature and combined into a single scale. This instrument was subjected to exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The results is an original, unique, and innovative conceptual model based on a sustainable development approach to entrepreneurial behavior.

2 Theoretical background of entrepreneurship and CSR values within sustainable business models

2.1 Entrepreneurship values

Entrepreneurship is associated with diverse phenomena (Lambing and Kühl 1997) as a complex process of creating and establishing start-ups (Bennett 1991) and expanding businesses (Gartner 1990). The concept of entrepreneurship can be approached from different theoretical perspectives, such as identity theory and stakeholder theory. In the former, entrepreneurship centers around founders' identities, behaviors, and actions when they manage their company (Fauchart and Gruber 2011), and the entrepreneurs' identity generates divergent strategies to solve the same problem because these individuals use their business as a vehicle to protect who they are or to become who they want to be (Powell and Baker 2014).

Research based on stakeholder theory in turn focuses on teaching and training's role in entrepreneurship (Freeman 2017; Bischoff et al. 2018), companies' sustainability objectives within entrepreneurship (Fischer et al. 2020), or analyses of organizational change caused by internal stakeholders (Chebbi et al. 2020). Another topic influenced by this theory is how employees' interests are integrated into strategic decisions about corporate innovation (Goldsby et al. 2018). Both theories agree that business practitioners' personal aptitudes condition their entrepreneurial behaviors, so the present study concentrated on determining which personal skills shape entrepreneurial behavior and thus could be associated with entrepreneurship.

Entrepreneurs' primary role in economies is to improve and develop businesses. Corporate entrepreneurship describes behavior within organizations that comprises on-going strategies concentrating on achieving competitive advantages in the global economy (Kuratko and Morris 2018) by aligning management and business operations (Brown et al. 2001). Entrepreneurship is understood as a social movement to mobilize resources (Welter 2011) and as an environmental approach to economic sustainability (Pastakia 1998; Mair and Marti 2006). Successful entrepreneurship also harnesses innovation to generate competitive advantages (Wiklund 1999; Schaltegger and Wagner 2011).

Dyduch (2008) observes that organizational entrepreneurship is linked with an entrepreneurial mentality in companies. Corporate entrepreneurship is associated with specific characteristics closely connected to business profiles, such as innovation, intention to create new business, self-renewal, proactivity, and risk taking (Shafique and Kalyar 2018; Lv et al. 2021). Entrepreneurs discover and exploit new products, processes, and ways of organizing operations (Baum and Locke 2004). However, successful entrepreneurship is impossible without other personal skills

and aptitudes associated with business management, for example, ambition, leadership, teamwork, and commitment (Prahalad 2006, 2010). Entrepreneurial intention alone is insufficient to drive new companies' creation (González-López et al. 2021; Khanin et al. 2022a, b), which again highlights the need to profile entrepreneurs based on their skills as the origin of future entrepreneurial behavior. Previous research provides compelling reasons to analyze personal attributes' link to corporate entrepreneurship to provide useful knowledge that can enhance the welfare of society at large. The current study thus sought to answer the question of how to measure entrepreneurial behavior through personal attributes.

Entrepreneurial orientation can be measured using a scale based on the interactions between three basic characteristics (i.e., essential domains of entrepreneurial passion)—innovative attitude, proactivity, and risk taking (Blesa et al. 2009). In addition, entrepreneurs have positive feelings toward inventing solutions, founding firms, and developing business opportunities (Cardon et al. 2013). Reflecting this approach, Dyduch's (2008) entrepreneurial measurement scale draws on Stevenson and Jarillo's (1990) conceptualization of entrepreneurship as opportunity-based and shaped by management style. Dyduch's (2008) model added a business orientation that is operationalized as corporate entrepreneurship structured into four areas: strategic, administrative, political, and behavioral. In this way, the cited scale measures individuals' potential, orientation, management capacities, and performance with regard to entrepreneurship through personal skills such as organizational boundaries, innovativeness, strategic orientation, and business orientation.

2.2 CSR values

The World Business Council on Sustainable Development (Holme and Watts 2000) defines CSR as companies' commitment to sustainable economic development, including considering the best interests of employees and their families, the local community, and society in general. *The Green Book: Promoting a European framework for Corporate Social Responsibility* (European Commission 2001) also encourages companies to integrate voluntarily social and environmental issues into their strategies, thereby going beyond merely generating profits. This integration focuses on impacts on stakeholders and society, respect for human rights, and consumers' concerns (European Commission 2011).

CSR strategies have been widely accepted (Asociación Española de Contabilidad y Administración de Empresas-AECA 2004; Pekovic and Vogt 2021) by both larger companies (Fassin et al. 2011; Vázquez-Carrasco and López-Pérez 2013) and smaller firms (Aguinis and Glavas 2019; Gallardo-Vázquez et al. 2013; Gallardo-Vázquez and Sánchez-Hernández 2014a, b; Herrera-Madueño et al. 2016; López-Cózar-Navarro and Benito-Hernández 2017; Moneva-Abadía et al. 2018; Valdez-Juárez et al. 2018; Gallardo-Vázquez and Valdez-Juárez 2022). The literature reports that 93% of the world's largest corporations report their CSR activities, including 69% of all companies in India and 60% in the Philippines (Grant Thornton 2013; KPMG 2013). Firms are clearly motivated to undertake socially responsible

initiatives because of CSR's ability to produce competitive advantages and better performance (Inoue and Lee 2011).

More specifically, ICSR (Mory et al. 2016) is generally understood as a focus on CSR in companies' internal operations in terms of the way firms carry out their responsibilities to their employees (Aguilera et al. 2007; Cavazotte and Chang 2016). CSRE can additionally focus on strategies that take care of employees (Hoang et al. 2020). These stakeholders are important as internal interest groups to any discussion of CSR (Aguilera et al. 2007; Farooq et al. 2017). Employees have the potential to lead CSR initiatives and, concurrently, are attracted and committed to socially responsible organizations (Stites and Michael 2011). From a behavioral economics' point of view, CSR strategies positively affect workers' on-the-job behavior and thus improve organizational climate and relationships between colleagues (Tsourvakas and Yfantidou 2018). CSR also has a positive impact on individuals' organizational commitment and job satisfaction (Glavas and Kelley 2014; Tsourvakas and Yfantidou 2018).

These findings confirm that, if organizations are involved in CSR activities, besides obtaining the above benefits, these firms can foster social participation reflected internally in their employees' behavior. Workers become involved in ICSR practices that ensure their organization complies with and satisfies social norms and standards within their society (Sánchez-Hernández et al. 2021; Tran et al. 2021). Improved organizational reputation is one result of working with employees who are involved in and proud of their company and who minimize their potential turnover rate. Workers expect socially responsible values from their employer and seek functional, economic, psychological, and ethical benefits as part of their job (Mason and Simmons 2013). Finally, ICSR determines organizations' legitimacy as staff members value opportunities to cocreate shared values (Ikram et al. 2021).

The difference between ICSR and ECSR lies in the contrasting objectives of companies' CSR initiatives (Deng et al. 2020). ICSR is oriented toward improving business administration practices through agents such as owners and employees, while ECSR targets other stakeholders such as consumers or environmental agencies (Farooq et al. 2017; Hur et al. 2019), which involves different processes. Along the same lines, various authors have conceptualized intrapreneurial behavior as actions seeking strategic renewal rather than just those related to risk taking, innovation, and proactivity within organizations (Gerards et al. 2021). Giang and Dung (2022) also found that employees' strategic renewal behavior mediates the relationship between ICSR and company performance, which means companies need to apply ICRS strategies to support intrapreneurship.

Within ECSR, CSR initiatives focus on meeting the demands of consumers who respond more favorably to socially conscious companies (Saeidi et al. 2015). Research on environmental stakeholders has confirmed that, more than just consumers, these actors are a reflection of society at large, but little is known about how these stakeholders react to company strategies that reduce environmental impacts (Ginder et al. 2021). Environmental activists can sometimes have an unwanted effect on firms, causing the latter to communicate fewer sustainability initiatives than those actually carried out for fear of being associated with CSR-washing (TerraChoice 2010; Lindsey 2016).

The existing literature shows that companies involved in both ICSR and ECSR benefit from better public valuations through listed securities than organizations that only focus on ECSR (Lee and Choi 2021). Studies have further indicated that efforts to promote both types of CRS can be negatively affected by executives' disproportionately large salaries and actions taken to improve their career. In publicly-owned firms, top administrators' strategies appear to be more oriented toward ECRS (Zhong et al. 2022). Different stakeholders' values vary for ICSR and ECSR when CSR is incorporated into other areas of research such as the present study's combined scale measuring CSR and entrepreneurship (i.e., the CSRE-s).

Previous related scales have focused on respondents' perception of the role of ethics and social responsibility (Singhapakdi et al. 1996; Quazi and O'Brien 2000), stakeholders' (i.e., employees, clients, and governments) role (Turker 2009), or other issues (e.g., corporate citizenship) (Maignan and Ferrell 2000). CSR has also been linked to strategic variables connected to customer advocacy and service innovation (Yeh 2015). Measurement instruments have been extended to include psychosocial CSR characteristics, combining the cognitive and behavioral dimensions of socially responsible consumers (DÁprile and Taló 2014) or responsible consumption (Dueñas Ocampo et al. 2014). Researchers have further analyzed stakeholders' influence on CSR strategies (Taghian et al. 2015) and work environment's internal contributions to CSR initiatives (Mory et al. 2016) based on stakeholder theory's postulations.

Gallardo-Vázquez et al.'s (2013) conceptual model integrated CSR's three dimensions (i.e., economic, social, and environmental), information received by organizations, and small and medium enterprises' disclosure of their initiatives. The resulting CSR scale measures companies' orientation toward CSR and takes a holistic approach to various sustainability issues through a large set of indicators (i.e., items) in order to identify local firms' voluntary CSR initiatives. Gallardo-Vázquez et al. (2013) applied reliability theory to ensure a more consistent, precise measurement of constructs (Carmines and Zeller 1979). Thus, Gallardo-Vázquez et al.'s (2013) scale combines items defined as personal skills indicating CSR propensities with items focused on companies' problems with and contributions to socioeconomic sustainability—many of which were later categorized as facets of SDGs.

The cited scale has been used in subsequent research due to this instrument's capacity for extrapolation to multiple settings (Gallardo-Vázquez and Sánchez-Hernández 2014a; Moneva-Abadía et al. 2018; Gallardo-Vázquez and Valdez-Juárez 2022). The present study's scale also measured variables connected with CSR's social dimension, and other items were adapted from Abbott and Monsen (1979), Turker (2009), and Mory et al. (2016) to cover environmental issues, which ensured the CSRE-s is conceptually supported by the extant literature.

2.3 Nexus between entrepreneurship and CSR: corporate socially responsible entrepreneurs

Researchers have linked CSR and entrepreneurship in businesses to form the concept of corporate social entrepreneurship (i.e., companies with activities of social

relevance). Kamaludin et al. (2021) identified four dimensions that define social entrepreneurship, that is, variables that reflect social, economic, behavioral, and governance values. The term CSR also covers social and economic aspects as essential dimensions. Different areas of study have additionally found support for entrepreneurship's importance in social value creation (Mitra and Borza 2011). However, various scholars have argued that social entrepreneurship and CSR are two different approaches that value social opportunities (Mitra and Borza 2010) and highlighted the need to connect social value (i.e., human rights, social entrepreneurship, and social benefits) with CSR (Sinkovics et al. 2015). CSRE thus comprises more than just social entrepreneurship.

Being socially responsible means not only meeting legal expectations but also investing in human capital, environmental sustainability, and relationships with company stakeholders (European Commission 2001). Fisher et al. (2020) found that entrepreneurs implement strategies covering three CSR dimensions (i.e., social, economic, and environmental), which are prioritized and balanced depending on the level of stakeholder engagement. These dimensions are also considered essential to the definition of personal capacities used to measure individuals' proclivity for social responsibility (Gallardo-Vazquez et al. 2013; Gallardo-Vázquez and Sánchez-Hernández 2014a; Moneva-Abadía et al. 2018; Pekovic and Vogt 2021). The economic, social, and environmental dimensions together provide key variables used to measure firms' entrepreneurial and socially responsible attitudes, which underline the connection between entrepreneurship and CSR through the shared goal of business sustainability.

The existing literature reveals that substantial levels of entrepreneurship can be linked to countries' growth (Ma and Bu 2021) and that blending CSR and entrepreneurship is an effective way to reduce poverty and associated factors (Raime et al. 2015). These findings support the current research's objective of developing a combined scale to identify corporate socially responsible entrepreneurs. According to García-Morales et al. (2020), entrepreneurship education must be reinforced to ensure companies will adopt appropriate values because the way that entrepreneurs conceptualize CSR affects their firm's social entrepreneurial performance (Aspelund et al. 2017).

More information is thus needed about the characteristics that causes individuals to integrate CSR and entrepreneurship into CSRE, which can be measured using a unique, combined scale previously unavailable in the literature, namely, the CSRE-s. The present results expand the existing knowledge about skills and aptitudes related to corporate socially responsible entrepreneurs' behavior, thereby fostering an integrated approach to social responsibility as a management strategy for entrepreneurs seeking to increase business sustainability.

3 Method

The CSRE-s consists of 84 items assessing entrepreneurship (55) and CSR's social (14), economic (7), and environmental (8) dimensions, which was developed and validated as a tool to identify corporate socially responsible

entrepreneurs. EFA was conducted to group sets of items with factors encouraging CSRE. CFA was also carried out to validate the scale.

3.1 Analysis procedure

Factor analysis relies on multiple regression models to measure latent variables through observed variables based on the covariances detected between the two kinds of variables. Thus, set p of observable variables (x_1, …, x_p) is related to multiple latent variables (f_1, …, f_k), for which $k<p$, through the relationships between them, as shown in Eqs. (1) and (2):

$$x_1 = \lambda_{11} f_1 + \cdots + \lambda_{1k} f_k + u_i \tag{1}$$

$$x_p = \lambda_{p1} f_1 + \cdots + \lambda_{pk} f_k + u_{pi} \tag{2}$$

and expressed as Eqs. (3) and (4):

$$x = \Lambda f + u \tag{3}$$

$$\Lambda = \begin{pmatrix} \lambda_{11} & \cdots & \lambda_{1k} \\ \vdots & \ddots & \vdots \\ \lambda_{p1} & \cdots & \lambda_{pk} \end{pmatrix}, \quad \mathbf{f} = \begin{pmatrix} f_1 \\ \vdots \\ f_k \end{pmatrix}, \quad \mathbf{u} = \begin{pmatrix} u_1 \\ \vdots \\ u_p \end{pmatrix}. \tag{4}$$

Λij are factorial weights that indicate how each variable x_i depends on common factors. These weights are used to interpret the factors' importance so that a larger value confirms that variable's relevance to the conceptual model. The assumption is made that residual terms u_i are uncorrelated with each other and with factors f_i. Each u_i is particular to each x_i, which means the former can be defined as a specific variable. The factors are not directly observable variables, so they are defined as standardized variables (0, 1) that are uncorrelated with each other. The factorial weights thus reflect the correlations between the variables and their corresponding factors.

Each observed variable's variance has two parts, as clarified by Eqs. (5) and (6):

$$\text{commonality:} \quad \left(\sum_{j=1}^{k} \lambda_{ij}^2 \right) \tag{5}$$

$$\text{specific variance } (\psi_i): \sigma_i^2 = \sum_{j=1}^{k} \lambda_{ij}^2 + \psi_i \tag{6}$$

Commonality is the variance shared with the other variables and mediated by common factors. Specific variance is the variable's own variability, which is not shared with the other variables. The covariance between the variables is defined by Eq. (7):

$$\sigma_{ij} = \sum_{l=1}^{k} \dot{\lambda}_{il}\dot{\lambda}_{lj} \tag{7}$$

Covariance does not depend on the specific variables involved but rather on the factors held in common. Equation (8) is applied to add up the values in the specific variables' covariance matrix:

$$\Sigma = \Lambda\Lambda' + \psi \tag{8}$$

in which ψ is a diagonal matrix composed of the specific variables' variances. For this model, certain parameters make the sample covariance matrix approximately equal to the total of the matrix values, which can be estimated using Eq. (9):

$$(s \approx \hat{\Lambda}\hat{\Lambda}' + \widehat{\psi}) \tag{9}$$

More specifically, EFA is based on the premise that measurable and observable variables can be condensed to a smaller number of latent variables with shared variance that are unobservable, resulting in dimensionality reduction (Bartholomew et al. 2011). EFA summarizes data to facilitate interpretations of relationships and patterns based on the shared variability detected (Yong and Pierce 2013). The conditions required to conduct factor analysis include, among others, the minimum inclusion of three variables per defined factor (Tabachnick et al. 2007), a Pearson's correlation coefficient r greater than 0.3 indicating that the variables' relationship is strong enough (Tabachnick et al. 2007), and an adequate sample size.

The literature on the question of sample size reveals contradictory opinions (Everitt 1975; Fabrigar and Wegener 2011). Hair et al. (2019) argue that the size should be 100 or more observations if possible, but Winter et al. (2009) assert that EFA can be conducted with less than 50 observations. Guadagnoli and Velicer (1988) in turn state that, if the dataset produces factor loads greater than 0.8, a sample of 150 observations will suffice. Comrey and Lee (1992) say that each variable included in the factor analysis must be subjected to 5–10 observations, while other researchers claim that arguments for a high number of observations have no theoretical or empirical basis (Fabrigar and Wegener 2011). In a related study, MacCallum et al.'s (1999) theoretical framework focused on sample size's effect on factor recovery, providing a basis for the claim that no absolute thresholds exist for minimum sample size.

Thus, some authors have defended the need for large samples, but other scholars have affirmed that the sample can comprise a smaller number of observations. For example, Mavrou (2015) confirmed that EFA should not be applied to samples of less than 50 observations, yet De Winter et al. (2009) found that this technique can be used with samples of less than 50 observations. The latter authors go further and assert that sample size alone is not a sufficiently compelling reason to reject EFA results since, even under restrictive conditions, the results can reveal valuable evidence of latent variables' patterns. Sample size is evidently related to problems encountered in data collection for economics research, that is, an inability to consider questions solely from a statistical viewpoint (Everitt 1975).

De Winter et al. (2009) suggest that, in exploratory research, applying EFA is preferable to rejecting it a priori. This argument has been supported by other studies (Preacher and MacCallum 2002; Sapnas and Zeller 2002; Mundfrom et al. 2005). Both criteria—sample size and ratio of observations per variable—are seen as overly simplistic when taken as strict limitations. According to Arrindell and van der Ende (1985), Velicer and Fava (1998), MacCallum et al. (1999), and MacCallum et al. (2001), other considerations must be assessed such as factors and communalities' representativeness. Various authors have added that 3–4 variables per factor are necessary if communalities are low (i.e., less than 0.60) (Velicer and Jackson 1990; Velicer and Fava 1998; Fabrigar et al. 1999; MacCallum et al. 1999, 2001). Conversely, other researchers have reported that estimates can be considered reliable whenever factors are measured by three strong items (saturations > 0.60–0.70) with high commonalities—regardless of sample size, factor determination results, or the presence of errors (Fabrigar et al. 1999; MacCallum et al. 2001). Finally, Osborne and Costello (2004) suggest that empirical research in the social sciences usually presents a low saturation point, so results in which $\lambda > 0.50$ can be considered adequate.

The present study accepted a priori that small samples are suitable if they are larger than 50 observations. The statistical findings were deemed appropriate and satisfactory in terms of sample size and the remaining considerations related to EFA's application in exploratory phases of empirical research in the social sciences. Adequate theoretical support was also found for the CSRE-s scale's composition in the relevant literature.

Bartlett's sphericity test (BST) and the Kaiser-Mayer-Olkin (KMO) measure can be used to measure sampling adequacy and verify correlations between items (Comrey 1973). BST checks the validity of the null hypothesis that the analyzed variables are not correlated for the dataset, which would imply that the correlation matrix equals the identity matrix (i.e., the variables' intercorrelations are zero). In statistical terms, an asymptotic distribution is characterized by an χ^2 distribution with $\frac{\rho*(\rho-1)}{2}$ degrees of freedom. High values can be associated with low significance, so the null hypothesis can be rejected and the sample variables are considered sufficiently intercorrelated to perform factor analysis (López-Aguado and Gutiérrez-Provecho 2019). The KMO test assesses the degree to which each variable is predicted by the others based on values between 0 and 1 (López-Aguado and Gutiérrez-Provecho 2019). The scores are generally treated as appropriate when they are greater than 0.7 (Lloret-Segura et al. 2014) and when the values are higher than 0.6 for social sciences studies (Almeida 2010).

CFA facilitates hypothesis confirmation and measurement scale validation (Fornell and Larcker 1981; Anderson and Gerbing 1988; Child 2006) by producing causal diagrams that represent the selected variables and factors via structural equation modeling and evaluating conceptual models based on previous research (Lewis 2017). CFA further evaluates measurement instruments' validity by analyzing their internal structure (Brown 2015). The relationships between the chosen components will likely be valid if they have previously converged in a tested theory or model, thereby allowing hypotheses to be formulated about indirectly observable variables (Rios and Wells 2014) and the determination of the number of underlying latent

variables (i.e., factors or constructs) and the observed relationships' patterns. CFA thus verifies whether instruments really measure the constructs they claim to measure and whether the sample's data fit the theoretical models previously developed (Smith and McMillan 2001).

The models' absolute and incremental fit can also be evaluated (Domínguez-Lara 2019). The absolute fit shows if the observed covariance matrix is equal to or different from the implied covariance matrix by running different tests, such as the standardized root mean square residual (SRMR) for samples equal to or less than 200 observations (Shi et al. 2020). The chi-square statistic can also be used to measure absolute fit, but this test is more sensitive to sample size (Lewis 2017). Incremental adjustment measures can, in turn, evaluate improvements made to the proposed measurement model compared to a base model (McNish et al. 2018), using, for example, the normalized fit index (NFI).

Finally, CFA can be used to assess measurement instruments' validity for latent variables and to reduce constructs' observational error. The standard statistical cut-off points for validity, however, are not universally applicable because they are insensitive to models and data's characteristics, which must be considered (Jordan Muiños 2021). According to McNish et al. (2018), latent variable models' different aspects have to be taken into account, including complexity, sample size, and the number of indicators per factor, because results can vary with different tests. Behavioral models usually imply some degree of measurement bias, so researchers have sought instead to justify scales' divergence theoretically (García and Caro 2009).

3.2 Research stages

The present study was conducted in two phases. Stage one covered the questionnaire design and fieldwork. Stage two focused on processing the data and drawing conclusions.

3.2.1 Stage one

The first stage started with an in-depth review of the academic literature on entrepreneurs' traits and, more specifically, entrepreneurs who implement CSR strategies. This review concentrated on finding instruments assessing both aspects, especially measurement scales. The latter were subjected to qualitative analysis to identify both scales appropriate for the targeted research population's environment and theoretical frameworks that emphasize entrepreneurs' characteristics and their CSR activities. The review subsequently identified gaps in the literature on measuring corporate socially responsible entrepreneurs' features, which facilitated the development of the RQ and SRQs derived from previous studies' findings (i.e., the SRQs).

Next, the proposed scale's different dimensions and items were defined, and a questionnaire was developed to collect data with the selected items. Various experts were consulted to evaluate the contents' clarity, which resulted in a final version of the CSRE-s with four dimensions and 84 items. The questionnaire and its distribution to the sample are described in greater detail in Sect. 3.3. The collected

data were coded using a spreadsheet and double-review process, namely, one author coded the data, and two others reviewed the coding. This phase ended when the dataset had been adequately coded for analysis.

3.2.2 Stage two

In this stage, the data processing focused from the start on validating the CSRE-s via EFA and CFA. EFA was applied because the objective was to identify the common factors' (i.e., latent variables) number and composition in order to explain the common variance of the items analyzed (i.e., corporate socially responsible entrepreneur traits) (Lloret-Segura et al. 2014). As the constructs were based on the existing literature, the EFA results show that the scale's validity is satisfactory (see Sect. 4).

Martínez-García and Martínez-Caro's (2009) suggestions were also followed to ensure an appropriate interpretation of statistical validity, so the current study included an examination of the divergence between two statistical criteria for the measurement instrument's validity. The current trend among researchers is to base final theoretical justifications on the most appropriate measures that facilitate an adequate interpretation of scales—even more so when the analysis is exploratory (i.e., aimed at ascertaining initial theoretical findings). Thus, qualitative analysis was conducted for the scale items, within the relevant dimensions, to identify each factor's associated construct and to assign that variable to the most appropriate dimension as determined by the theoretical framework drawn from the extant literature.

In stage two's second phase, CFA was carried out as recommended by Arias Martínez (2008), that is, as a complementary EFA validation test. This subsequent use of CFA thus tested the factor solution obtained with EFA. The latter facilitated an in-depth exploration of a potential factor structure (i.e., latent dimensions) in relation to corporate socially responsible entrepreneur features, based on the correlations between the variables revealed by the respondents' self-reported data. CFA in turn verified the proposition that these entrepreneurs' traits could be measured using the CSRE-s. The confirmed version of the CSRE-s comprises 76 items grouped around 12 factors (i.e., latent variables reflecting CSRE traits). The validated scale's results enabled conclusions to be drawn about the theoretical relationships analyzed.

3.3 Data collection and sample

This study relied on data gathered with a structured questionnaire of 84 items, which was administered to 95 respondents from companies of different sizes and sectors in Extremadura, Spain. The participants had different positions in their organizations: president, CEO, administrator, partner, head of unit, staff, board member, and manager in accounting, commercial, production, marketing, finance, technology, and human resource departments. The questionnaires were distributed in both a digital and paper format. Cohen's (1988) power tables and Green (1991) and Roldán and Sánchez-Franco's (2012) methods were applied to the data, which confirmed a medium effect size (i.e., 0.80) and a Cronbach's alpha (α) of 0.05. The minimum sample required to conduct this research was 76 cases, so the sample exceeded the

size needed to estimate the model. The respondents' profile shown in Table 1 was generated using IBM SPSS v.23 and SmartPLS v3.2.8 Professional software.

3.4 Measures and questionnaire

The items were based on the previously discussed literature review of theoretical research on entrepreneurship and CSR. The questions were answered on a 10-point Likert scale (1 = "Totally disagree"; 10 = "Totally agree"). The questionnaire was divided into three parts:

1. Organizational characteristics: sector, respondent's position, and number of employees
2. Items measuring entrepreneurial traits (i.e., ENTR)
3. Items assessing the three dimensions of CSR (i.e., SOCD, ECOD, and ENVD)

The two main areas measured by the CSRE-s are CSR and entrepreneurship traits. None of the variables could be considered observable, so their values were defined by sub-scales consisting of indicators that quantify the surveyed individuals' self-perceptions, as has been done in previous research (i.e., Li et al. 2016; Moneva-Abadía et al. 2018). Thus, the CSRE-s's results focus on a single endogenous

Table 1 Participants according to company features

Company size		Sector	
Microbusiness	52.63%	Agro-livestock activities	6.31%
Small business	29.47%	Food industry	4.21%
Medium business	10.52%	Textiles	4.21%
Large business	7.37%	Wood, cork, paper, and furniture	3.15%
		Metalworking and metallurgy	3.15%
		Knowledge and ICT	6.31%
		Construction	6.31%
		Commerce	28.42%
		Transportation	5.26%
		Catering and tourism activities	1.05%
		Audiovisual activities	1.05%
		Financial services	3.15%
		R&D	1.05%
		Health	3.15%
		Insurance and real estate activities	2.11%
		Education	5.26%
		Other services	15.78%

ICT information and communications technology, *R&D* research and development

Source: Authors

variable based on the respondents' combined self-perception of CSR and entrepreneurship characteristics.

As stated previously, the CSR items addressed three dimensions: economic, social, and environmental. The economic dimension internally affects companies' profitability and sustainability and externally influences the production of quality goods and services and social programs. The social dimension covers employees' well-being and workplace ethics. The environmental dimension deals with the proper use of resources and waste management. These three dimensions' items concentrated on issues related to the level of performance achieved based on the initiatives implemented, as previous studies have done (Abbott and Monsen 1979; Turker 2009; Mory et al. 2016).

The present scale for the CSR dimensions had already been used in Spanish business environments and small companies (Gallardo-Vázquez et al. 2013; Gallardo-Vázquez and Sánchez-Hernández 2014a, b; Moneva-Abadía et al. 2018), so this measurement instrument was considered suitable for the research context in question. The scale assessed the respondents' overall perception of CSR features for individuals engaging in CSRE through 14 items for the social dimension, 7 for the economic dimension, and 8 for the environmental dimension. The 29 items were all validated using EFA and CFA.

Entrepreneurial traits were measured as a single dimension with items focused on individuals' self-perceived intrapreneurship, namely, their application of entrepreneurship within their organization. The measures in this dimension focused on entrepreneurial values such as innovation, social responsibility, commitment, risk taking, and leadership. These traits were evaluated by 55 items drawn from previous investigations (Dyduch 2008; Blesa et al. 2009; Cardon et al. 2013), of which 47 were validated for the CSRE-s.

In total, 76 of the CSRE-s questions were validated (see the appendix). The ENTR items included, for example, "I actively search for opportunities" and "I find time to develop new ideas." The SOCD items covered issues with statements such as "we have flexible work policies that provide a professional-personal life balance." The ECOD items assessed multiple traits, for instance, "we care about providing high quality products and/or services to our customers." The ENVD items in turn included aspects such as "we focus on energy savings to achieve greater efficiency." The scale thus reflected the research model's relationships based on the literature review and addressed the study's objectives, RQ, and SRQs.

No previous measurement instruments have focused on corporate socially responsible entrepreneur features, so the CSRE-s was developed without attention paid to equally weighting the four dimensions (i.e., three for CSR and one for entrepreneurship). All the CSR and entrepreneurship items were subjected to factor analysis, and the measures were regarded as scalable (see Fig. 1). The EFA and CFA results were used to identify each dimension's key variables, as well as the items to be included for each factor (see the appendix for the validated CSRE-s). The quantitative data were interpreted with reference to the literature review's findings to specify the different traits' weights in order to define each factor more accurately for the CSRE-s. The quantitative results, therefore, contributed to the

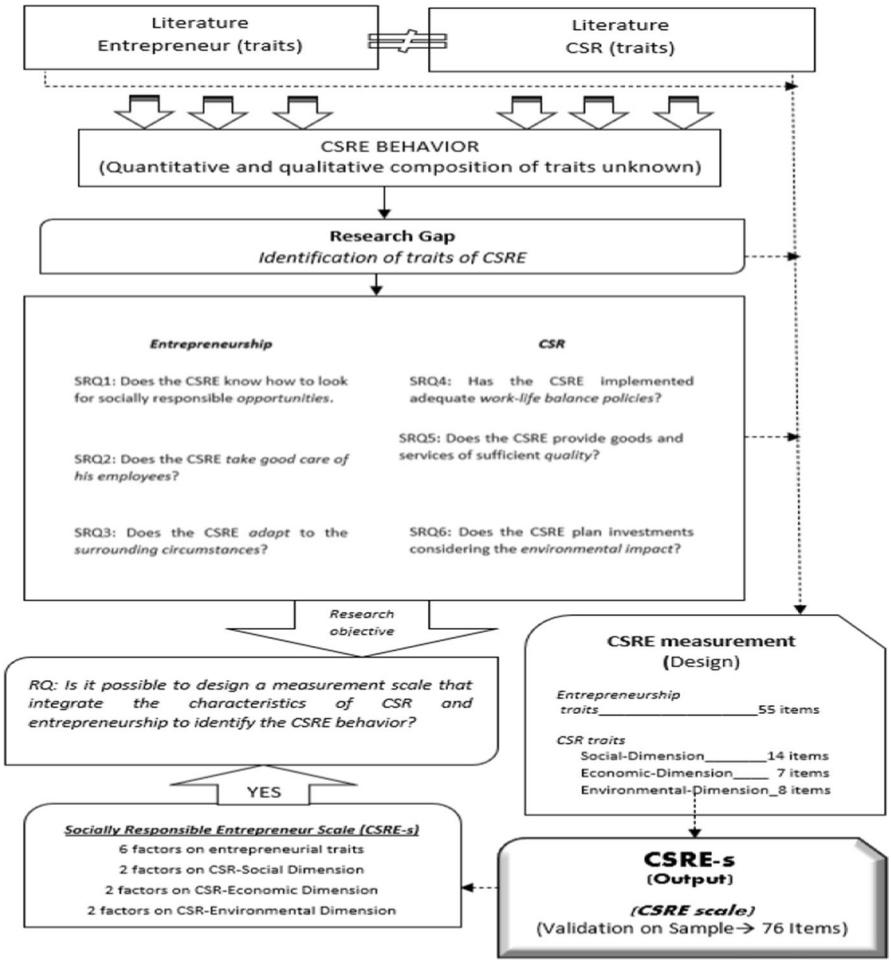

Fig. 1 Research objective, research questions, and literature. *Source*: Authors

initial theoretical model by delineating corporate socially responsible entrepreneurs based on their features. The results elucidate the connections between the variables that measure the different constructs, but future studies may want to test models with additional relationships between these variables and others.

The questionnaire was sent to a list of small and medium-sized companies in Extremadura via an email containing a Google Forms link. Face-to-face surveys were also conducted in various businesses. The people surveyed did not receive any prior notice of the questionnaire or information about the survey's topic so that their responses would not be affected and the respondents would feel free to express their opinions. The questionnaires were collected between November 2019 and November 2021. A total of 95 valid questionnaires were received, of which 56 were filled out online and 39 in person. The data analysis was conducted

using IBM SPSS for EFA and SmartPLS for CFA. The techniques applied consisted of component-based analysis and partial least squares (PLS).

4 Results

4.1 Descriptive statistics

The results for the measures of distribution were generated by IBM SPSS software (see Table 2). According to the previous data analyses, each item's standard deviation (SD) did not exceed the mean when the means and variances were subjected to pairwise comparison. The distribution of each item's mean values thus reveals that no bias is present. Each SD is also approximately half of its respective mean, and the absence of extreme values means each item's mean is undistorted as shown by Fig. 2, which was created using Excel.

4.2 EFA

Based on the specifications presented in Sect. 3, the model's constructs produced the following values. The BST for the ENTR items is 10594.838 ($p < 0.001$), and the KMO measure of sampling adequacy is 0.810. The BST for the SOCD items is 3469.569 ($p < 0.001$), and the KMO value is 0.838. The BST for the ECOD items is 1438.655 ($p < 0.001$), and the KMO measure is 0.845. Finally, the BST for the ENVD items is 1214.159 ($p < 0.001$), and the KMO value is 0.829. In all cases, the KMO values are higher than 0.6, and the BST presents p-values of less than 0.001. The results thus confirmed that factor analysis could be conducted with the sample. The main axes method was used to extract the factors, and Costello and Osborne's (2005) recommendations were followed to avoid restricting the values to a normal distribution.

Various criteria can be applied to determine the optimum number of factors. Researchers have previously treated defined eigenvalues as indicators of the proportion of variance explained. Kaiser's (1960) criterion means that factors whose eigenvalues are less than 1 need to be excluded to ensure the required percentage of total minimum explained variance for social science studies. That is, the factors must explain about 60% of the total variance observed in the original indicators.

- In the present research, the first ENTR factor explains 28.965% of the variance, while the second ENTR factor covers 22.989% and the third 9.429%, in total explaining 61.383%. The next factors explain smaller percentages of the variance, which add up to 86.841% of the total variance explained. The remaining variables cover only minor percentages, so the 11 selected ENTR factors were considered to be the most essential, thereby reducing the model's ENTR dimensions from 55 to 11.
- For SOCD, the first factor explains 66.815% of the variance and the second factor 13.460%, thereby reaching an optimal explanation of the total variance.

Table 2 Descriptive statistics of variables and ítems

Variables and items (number [N] = 95)	Mean	Standard deviation	Variables and items (N = 95)	Mean	Standard deviation	Variables and items (N = 95)	Mean	Standard deviation
ENTR						*ECOD*		
ENTR31	6.871	2.001	ENTR32	7.394	1.823	SOCD1	6.957	1.841
ENTR2	7.436	1.742	ENTR33	7.638	1.590	SOCD2	7.527	1.841
ENTR3	7.819	2.088	ENTR34	7.626	1.695	SOCD3	7.879	1.827
ENTR4	8.426	1.568	ENTR35	8.158	1.725	SOCD4	6.576	2.428
ENTR5	7.796	1.650	ENTR36	7.250	1.839	SOCD5	7.207	2.315
ENTR6	8.149	1.804	ENTR37	6.032	2.264	SOCD6	6.967	2.072
ENTR7	7.063	1.868	ENTR38	5.851	2.078	SOCD7	6.946	2.357
ENTR8	7.742	1.665	ENTR39	7.606	1.626	SOCD8	7.630	2.195
ENTR9	8.337	1.540	ENTR40	7.213	1.929	SOCD9	7.359	2.170
ENTR10	8.043	1.691	ENTR41	7.681	1.721	SOCD10	7.505	2.072
ENTR11	7.731	1.654	ENTR42	7.457	1.705	SOCD11	8.022	2.179
ENTR12	8.105	1.632	ENTR43	7.138	1.730	SOCD12	6.451	2.611
ENTR13	7.926	1.681	ENTR44	7.648	1.960	SOCD13	5.522	2.825
ENTR14	7.832	1.884	ENTR45	7.809	1.982	SOCD14	7.780	1.926
ENTR15	8.253	1.465	ENTR46	6.505	2.474	*ECOD*		
ENTR16	7.766	1.747	ENTR47	6.419	2.875	ECOD1	8.415	1.666
ENTR17	7.537	1.659	ENTR48	6.075	2.591	ECOD2	8.351	1.616
ENTR18	7.768	1.606	ENTR49	4.892	2.412	ECOD3	8.269	1.497
ENTR19	7.905	1.674	ENTR50	6.304	2.599	ECOD4	8.140	1.637
ENTR20	8.495	1.589	ENTR51	5.728	2.601	ECOD5	8.140	1.624
ENTR21	8.095	1.717	ENTR52	6.140	2.367	ECOD6	7.659	2.200
ENTR22	7.863	1.822	ENTR53	6.778	2.091	ECOD7	7.457	2.186
ENTR23	8.326	1.511	ENTR54	3.813	2.198	*ENVD*		
ENTR24	7.853	1.556	ENTR55	6.626	2.261	ENVD1	7.165	2.150
ENTR25	7.105	1.803				ENVD2	7.570	2.060
ENTR26	6.293	2.384				ENVD3	7.484	2.077
ENTR27	7.105	2.002				ENVD4	6.602	2.605
ENTR28	6.075	2.459				ENVD5	7.596	2.103
ENTR29	7.516	1.602				ENVD6	7.978	2.005
ENTR30	6.596	1.830				ENVD7	7.319	2.122
ENTR31	6.871	2.001				ENVD8	7.674	2.044

ENTR entrepreneurship, *SOCD* social dimension of corporate social responsibility (CSR), *ECOD* economic dimension of CSR, *ENVD* environmental dimension of CSR

Source: Authors

- The first ECOD factor explains 73.488% of the variance and the second factor 14.917%, which together exceed the suggested minimum of 60%.
- The first ENVD factor explains 72.296% of the variance, while the second factor explains 14.438%.

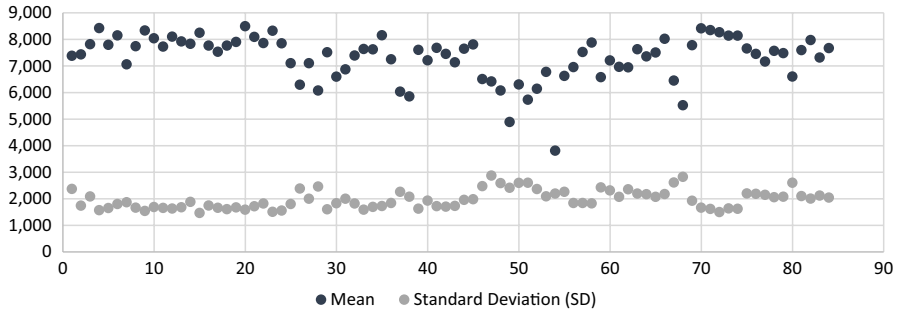

Fig. 2 Pairwise comparison of means and standard deviations for ENTR, SOCD, ECOD, and ENVD. *Source*: Authors. Note. *ENTR* entrepreneurship, *SOCD* social dimension of corporate social responsibility (CSR), *ECOD* economic dimension of CSR, *ENVD* environmental dimension of CSR

The above values comprise an extremely large proportion of the total variance. At this point, the CSR dimensions had two factors each, and entrepreneurship incorporated 11 factors. However, various authors (Little et al. 1999; Raubenheimer 2004; Kim et al. 2015) suggest that studies only retain factors with at least three elements, so factors 7 to 11 and their items were eliminated: ENTR6, ENTR16, ENTR36, ENTR38, ENTR44, and ENTR45. This refinement procedure left a total explained variance of 76.265%. Items present in two of the eliminated factors were incorporated into the factor with the greatest loading. Table 3 provides a list of each variable's remaining factors and items.

An alternative method for selecting the best number of factors is a scree test, scree graph, or sedimentation graph (Cattell 1966) (see Fig. 3a–d), in which eigenvalues (i.e., on the ordinate axis) are included for each factor (i.e., on the abscissa axis). The graphs' point of inflection needs to be determined as this can be used to justify the selection of factors. Kline (2000) notes that scree tests include a degree of subjectivity, but their reliability has been verified. The first change in a scree graph's slope provides the cut-off point for the number of factors to be extracted (Pérez and Medrano 2010) as the eigenvalues that explain most of the variance are located to the left of that point.

The rotated factor matrix for each dimension are presented in Tables 4 and 5. According to these results, the rotated factor matrixes identify a total of 12 latent dimensions: 6 for entrepreneurship and 6 for CSR.

In addition, calculating the Cronbach's α facilitates the specification of correlations among variables. The following coefficients were found: $\alpha_1 = 0.903$ for ENTR; $\alpha_2 = 0.959$ for SOCD; $\alpha_3 = 0.914$ for ECOD; and $\alpha_4 = 0.937$ for ENVD. The scale's internal consistency was also confirmed (Cronbach's $\alpha > 0.7$).

4.3 CFA

Structural equation modelling was conducted next, as recommended in previous studies (Fornell and Larcker 1981; Anderson and Gerbing 1988; Child 2006), to validate the measurement scales using PLS. This technique focuses on checking

Table 3 Factors, items, and dimensions

Dimensions	Factors	Items
Entrepreneurship (ENTR)	Factor 1	ENTR7, ENTR9, ENTR12, ENTR13, ENTR14, ENTR15, ENTR17, ENTR18, ENTR19, ENTR20, ENTR21, ENTR22, ENTR23, ENTR24, ENTR25, ENTR27, ENTR29, ENTR35, ENTR37
	Factor 2	ENTR2, ENTR4, ENTR30, ENTR31, ENTR32, ENTR39, ENTR40, ENTR41, ENTR42, ENTR43, ENTR46
	Factor 3	ENTR5, ENTR8, ENTR1, ENTR26, ENTR34
	Factor 4	ENTR28, ENTR33, ENTR47, ENTR48, ENTR49, ENTR52
	Factor 5	ENTR53, ENTR54, ENTR55
	Factor 6	ENTR3, ENTR50, ENTR51
Social dimension of corporate social responsibility (CSR) (SOCD)	Factor 7	SOCD4, SOCD5, SOCD6, SOCD8, SOCD9, SOCD10, SOCD11, SOCD13, SOCD14
	Factor 8	SOCD1, SOCD2, SOCD3, SOCD7, SOCD12
Economic dimension of CSR (ECOD)	Factor 9	ECOD1, ECOD2, ECOD3, ECOD7
	Factor 10	ECOD4, ECOD5, ECOD6
Environmental dimension of CSR (ENVD)	Factor 11	ENVD4, ENVD5, ENVD6, ENVD7, ENVD8
	Factor 12	ENVD1, ENVD2, ENVD3

Source: Authors

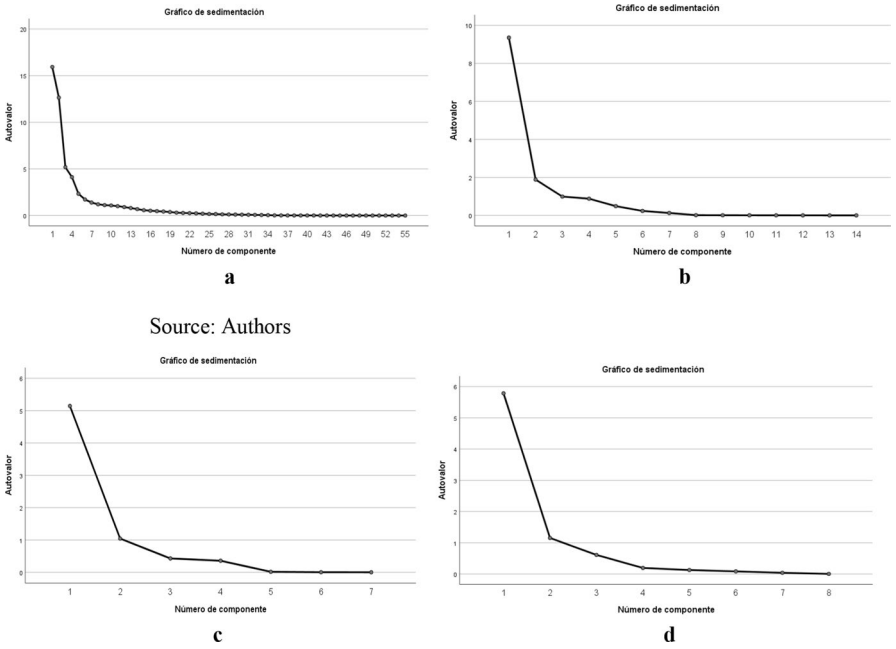

Fig. 3 **a** Scree graph of entrepreneurship. **b** Scree graph of social dimension of corporate social responsibility (CSR). **c** Scree graph of economic dimension of CSR. **d** Scree graph of environment dimension of CSR.

goodness of fit, composite reliability, convergent validity, and discriminant validity. Various indices are available for PLS that can be used to evaluate measurement models' goodness of fit (Henseler et al. 2016; Henseler 2017, 2018): SRMR, unweighted least squares discrepancy (d_ULS), geodesic discrepancy (d_G), the NFI, and mean square error correlation (RMStheta).

The present SRMR evaluation produced a satisfactory value of 0.062, well below the standard 0.08 upper limit (Hu and Bentler 1998; Henseler et al. 2014) and the usual 0.09 cut-off point for samples of 100 or less observations (Cho et al. 2020). The d_ULS and d_G adjustment tests used inference statistics based on bootstrapping (Henseler et al. 2016), providing values of 7627 and 13,708, respectively (i.e., below the 95% percentile), which confirmed that any existing discrepancies are statistically non-significant. The model's absolute fit for the CSRE-s results is, therefore, overall good because the observed variables' covariance matrixes fit well with the model's implicit covariance matrix, which confirms the model's adequate fit to the latent variables measured. According to Escobedo Portillo et al. (2016), the NFI value (0.578) does not indicate the model has perfect incremental fit, but the value obtained for the RMStheta (0.159) is close to 0 and slightly higher than 0.12, which shows that the measurement model comes close to having an optimal incremental fit (Henseler et al. 2016). This finding provides further evidence of the scale's goodness of fit. The tests conducted

Table 4 Rotated factor matrix for entrepreneurship variable (ENTR)

Factor 1		Factor 2		Factor 3		Factor 4		Factor 5		Factor 6	
ENTR7	0.700	ENTR2	0.980	ENTR5	0.962	ENTR28	0.876	ENTR53	0.698	ENTR3	0.949
ENTR9	0.878	ENTR4	0.983	ENTR8	0.966	ENTR33	0.908	ENTR54	0.750	ENTR50	0.592
ENTR12	0.878	ENTR30	0.989	ENTR1	0.963	ENTR47	0.676	ENTR55	0.771	ENTR51	0.587
ENTR13	0.853	ENTR31	0.748	ENTR26	0.898	ENTR48	0.678				
ENTR14	0.776	ENTR32	0.990	ENTR34	0.819	ENTR49	0.676				
ENTR15	0.934	ENTR39	0.984			ENTR52	0.682				
ENTR17	0.850	ENTR40	0.984								
ENTR18	0.759	ENTR41	0.988								
ENTR19	0.840	ENTR42	0.988								
ENTR20	0.899	ENTR43	0.987								
ENTR21	0.802	ENTR46	0.689								
ENTR22	0.863										
ENTR23	0.929										
ENTR24	0.915										
ENTR25	0.801										
ENTR27	0.751										
ENTR29	0.768										
ENTR35	0.823										
ENTR37	0.562										

Extraction method: principal axis factoring; rotation method: varimax with Kaiser normalization; rotation converged in seven iterations; results generated by SmartPLS

Source: Authors

Table 5 Rotated factor matrix for corporate social responsibility dimensions: social (SOCD), economic (ECOD), and environmental (ENVD)

SOCD				ECOD				ENVD			
Factor 1		Factor 2		Factor 1		Factor 2		Factor 1		Factor 2	
SOCD4	0.750	SOCD1	0.861	ECOD1	0.905	ECOD4	0.862	ENVD1	0.757	ENVD4	0.894
SOCD5	0.757	SOCD2	0.694	ECOD2	0.904	ECOD5	0.864	ENVD2	0.930	ENVD5	0.914
SOCD6	0.723	SOCD3	0.773	ECOD3	0.816	ECOD6	0.867	ENVD3	0.929	ENVD6	0.913
SOCD8	0.940	SOCD7	0.671	ECOD7	0.899			ENVD8	0.659	ENVD7	0.814
SOCD9	0.938	SOCD12	0.786								
SOCD10	0.876										
SOCD11	0.879										
SOCD13	0.671										
SOCD14	0.878										

Extraction method: principal axis factoring; rotation method: varimax with Kaiser normalization; rotation converged in three iterations; results generated using SmartPLS

Source: Authors

thus confirmed that the overall model has acceptable goodness of fit for the data gathered to address the research questions.

Reliability analysis was carried out to determine the internal consistency of each construct's indicators, using Cronbach's α (Lu et al. 2009). However, this coefficient alone can be insufficient evidence of consistency (Cronbach and Shavelson 2004), so composite reliability was also estimated to determine the extent to which the present set of latent constructs' indicators are shared with each construct's own indicators (Hair et al. 1998). Nunnally (1978) and Nunnally and Bernstein (1994) recommend that the loading values above 0.7 be considered acceptable for exploratory research, although more advanced research requires a value equal to or greater than 0.8. The current study's composite reliability values all fall between 0.947 and 0.987, showing that the measurement instrument is reliable (Hair et al. 2012).

The average variance extracted (AVE) values were also calculated to check convergent validity (i.e., the degree of interrelationship between the observable variables). The AVE value for each construct is greater than 0.5, which confirms convergent validity according to Fornell and Larcker (1981) and Hair et al. (2011) (see Table 6).

Discriminant validity was evaluated to assess "the extent to which a given construct differs from other constructs" (Roldán and Sánchez-Franco 2012, p. 204). Fornell and Larcker (1981) suggest using AVE, whose value should be greater than the squared correlations between each construct and the others in the model. The square root of each variable's AVE (i.e., values on the diagonal) needs to be higher than the correlation between that variable and the rest of the model's constructs. Based on Fornell and Larcker's (1981) criterion, discriminant validity was fully confirmed for half of the relationships between the present model's constructs (i.e., ENTR–ENVD and SOCD–ENVD). The ENTR–ECOD and SOCD-ECOD relationships slightly exceeded the maximum values allowed (see Table 7). An additional discriminant validity test is the heterotrait-monotrait ratio, for which a maximum threshold of 0.90 is acceptable, according to Roldán and Sánchez-Franco (2012) and Henseler et al. (2015) (see Table 8). The ratio values show that most of the current model's variables have discriminant validity. The SOCD-ECOD relationship alone failed to meet the discriminant validity criterion.

5 Measurement model for CSRE traits: discussion

The literature review of prior entrepreneur studies highlighted that few scholars have analyzed entrepreneur subtypes despite evidence of diverse personality traits. Empirical research on this topic is still rarer, as are studies based on samples of actual companies because investigations tend to focus more often on students as potential entrepreneurs even though they are not real entrepreneurs (Salmony and Kanbach 2022). Given these gaps, the present study's aims and results are especially important because of its empirical research design, analysis of data on a specific type of entrepreneur (i.e., corporate socially responsible entrepreneurs), and sample of active entrepreneurs rather than students.

Table 6 Confirmatory factor analysis summary

Items	Loadings (λ)	Cronbach's alpha	Composite reliability	AVE	Items	Loadings (λ)	Cronbach's alpha	Composite reliability	Ave
ENTR10	0.783	0.987	0.987	0.683	SOCD10	0.826	0.951	0.958	0.675
ENTR11	0.850				SOCD11	0.888			
ENTR12	0.857				SOCD12	0.700			
ENTR13	0.846				SOCD14	0.869			
ENTR14	0.745				SOCD2	0.800			
ENTR15	0.916				SOCD3	0.880			
ENTR16	0.816				SOCD5	0.790			
ENTR17	0.868				SOCD6	0.706			
ENTR18	0.723				SOCD7	0.804			
ENTR19	0.844				SOCD8	0.917			
ENTR20	0.889				SOCD9	0.831			
ENTR21	0.818				ECOD1	0.932	0.947	0.957	0.762
ENTR22	0.863				ECOD2	0.924			
ENTR23	0.918				ECOD3	0.896			
ENTR24	0.894				ECOD4	0.919			
ENTR25	0.805				ECOD5	0.798			
ENTR29	0.748				ECOD6	0.809			
ENTR3	0.767				ECOD7	0.823			
ENTR30	0.822				ENVD1	0.854	0.948	0.956	0.733
ENTR31	0.811				ENVD2	0.815			
ENTR32	0.851				ENVD3	0.900			
ENTR33	0.815				ENVD4	0.812			
ENTR34	0.797				ENVD5	0.866			
ENTR35	0.839				ENVD6	0.827			

Table 6 (continued)

Items	Loadings (λ)	Cronbach's alpha	Composite reliability	AVE	Items	Loadings (λ)	Cronbach's alpha	Composite reliability	Ave
ENTR36	0.849				ENVD7	0.885			
ENTR39	0.729				ENVD8	0.885			
ENTR4	0.797								
ENTR40	0.722								
ENTR41	0.888								
ENTR42	0.815								
ENTR43	0.819								
ENTR5	0.864								
ENTR6	0.861								
ENTR7	0.722								
ENTR8	0.833								
ENTR9	0.901								

AVE average variance extracted, *ENTR* entrepreneurship, *SOCD* social dimension of corporate social responsibility (CSR), *ECOD* economic dimension of CSR, *ENVD* environmental dimension of CSR; results generated by SmartPLS

Source: Authors

Table 7 Discriminant validity based on average variance extracted

	ECOD	ENVD	ENTR	SOCD
ECOD	0.87			
ENVD	0.81	0.86		
ENTR	0.88	0.67	0.83	
SOCD	0.89	0.82	0.83	0.82

ENTR entrepreneurship, *SOCD* social dimension of corporate social responsibility (CSR), *ECOD* economic dimension of CSR, *ENVD* environmental dimension of CSR; results generated by SmartPLS

Source: Authors

Table 8 Values obtained for heterotrait-monotrait ratio

	ECOD	ENVD	ENTR	SOCD
ECOD				
ENVD	0.86			
ENTR	0.90	0.69		
SOCD	0.94	0.87	0.85	

ENTR entrepreneurship, *SOCD* social dimension of corporate social responsibility (CSR), *ECOD* economic dimension of CSR, *ENVD* environmental dimension of CSR; results generated by SmartPLS

Source: Authors

Figure 4 presents the final theoretical model of corporate socially responsible entrepreneurs' traits. The model summarizes the results of the proposed CSRE-s scale designed to measure these individuals' identifying characteristics. The constructs all received conceptual support from the existing literature, and the measurement instrument's validation confirms the most significant personal characteristics that entrepreneurs need to launch a company successfully if they want to incorporate CSR considerations from the beginning (see the appendix).

The CSRE-s's results provide clues to how to develop entrepreneurship measures that reflect start-ups' strong relationship with social responsibility and their current business model's focus on sustainability. By incorporating these CSRE elements, other companies in Spain and elsewhere could generate management policies that ensure greater economic and social sustainability.

As shown in Fig. 4 above, the CSRE-s measures CSRE traits based on 12 factors. Of these, six constructs (i.e., Factors 1–6) are composed of items that assess entrepreneurship. That is, this scale's first six factors cover more typical entrepreneurship traits. The CSRE-s also contains six other factors (i.e., Factors 7–12) that encompass characteristics that have traditionally been understood as connected to CSR behavior among entrepreneurs.

The EFA and CFA results were translated into a theoretical framework of the entrepreneurship and CSR concepts and their indicators. The CSRE-s is thus a valid, statistically supported measurement instrument allowing an initial estimation of corporate socially responsible entrepreneurs' profile, as well as interpretations of the data based on the tested theoretical framework. The results are an

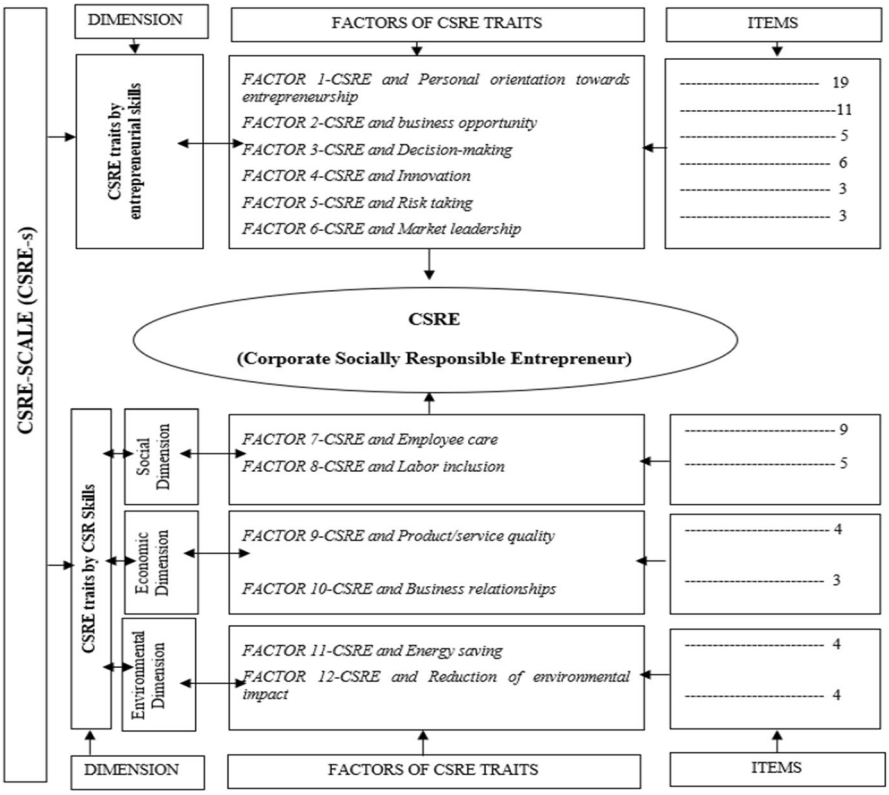

Fig. 4 Factors for corporate socially responsible entrepreneur traits. *Source*: Authors

initial approximation of this type of entrepreneur, offering a balanced assessment of the strength of individuals' entrepreneurial traits and CSR based on 12 factors that determine corporate socially responsible entrepreneurs' characteristics: 6 factors that promote entrepreneurial attitudes and another 6 factors linked to CSR attitudes.

CSRE contributes six factors to the corporate socially responsible entrepreneur profile, whose items confirm the entrepreneurial traits reported by Dyduch (2008), Blesa et al. (2009), and Cardon et al. (2013). These factors are thus among this type of entrepreneurs' definitive characteristics.

- Factor 1 encompasses the personal traits that lead individuals to engage in entrepreneurship, reaffirming the need for skills such as valuing effort, self-esteem, enthusiasm, and self-criticism. This construct is compatible with prior theoretical research on personal CSRE traits that contribute to an entrepreneurial approach (Dyduch 2008; Blesa et al. 2009; Cardon et al. 2013).
- Factor 2 comprises 11 characteristics related to business opportunities including, among others, initiative, an ability to adapt, or a predisposition to change.

This construct is compatible with existing theories about CSRE traits related to entrepreneurs' attitudes toward business opportunities (Choi and Gray 2008; Schaltegger and Wagner 2011; Gast et al. 2017; Muñoz et al. 2018; Anand et al. 2021).

- Factor 3 incorporates characteristics connected to decision-making processes.
- Factor 4 features innovation traits linked to CSRE, with a view to novel approaches to creating businesses, products, or business procedures and to understanding the business sector involved.
- Factor 5's three items cover corporate socially responsible entrepreneurs' risk-taking traits.

Factors 3 to 5 are overall compatible with previous theoretical results for these individuals' characteristics in CSRE contexts (Aguilera et al. 2007; Cavazotte and Chang 2016; Mory et al. 2016; Hoang et al. 2020; Blanco-González et al. 2021; Tran et al. 2021).

- Finally, Factor 6 associates this type of entrepreneur with business leadership. The latter construct is compatible with traits classified as socioeconomic values reflected in entrepreneurs' management approach (Porter and Kramer 2003; Gallardo-Vázquez et al. 2020; Stawicka 2021).

The present results for the CSRE-s confirm most CSR traits found in the extant literature (Turker 2009; Gallardo-Vázquez et al. 2013; Gallardo-Vázquez and Sánchez-Hernández 2014a, b; Mory et al. 2016; Moneva-Abadía et al. 2018). The present scale's constructs define the CSR aspects of corporate socially responsible entrepreneurs' characteristics (i.e., 2 factors for the CSR social dimension, 2 for economic, and 2 for environmental).

- First, the social dimension is covered by Factor 7's nine items assessing the employee care traits that corporate socially responsible entrepreneurs must have, while Factor 8 comprises a focus on inclusive labor practices. This factor is compatible with the existing theories about entrepreneurs' characteristics with reference to employees (Hanohov and Baldacchino 2017; Alonso and Austin 2018; Sarango-Lalangui et al. 2018; De Brito and Leitão 2020; Anand et al. 2021).
- Second, the economic dimension is measured via Factors 9 and 10, which identify corporate socially responsible entrepreneurs' orientation toward quality control and business relationships, respectively. These constructs are compatible with previous authors' findings on CSRE traits related to product quality strategies (see Schaltegger and Wagner [2011] and Anand et al. [2021]).
- Last, the environmental dimension reflects this type of entrepreneur's attitudes toward saving energy and reducing companies' ecological footprint, which are assessed by Factors 11 and 12, respectively. These constructs are congruent with CSRE characteristics associated with environmental care (Choi and Gray 2008; Gast et al. 2017; Muñoz et al. 2018).

A broader discussion is needed in the future of the constructs' explanatory interrelationships, but the current EFA and CFA results confirm that the factors measuring corporate socially responsible entrepreneurs' behavior as a whole do not indicate that greater weight needs to be given to entrepreneurship than to the three CSR dimensions. Each half of the CSRE-s contributes half of the constructs as these entrepreneurs evidently assign the same importance to entrepreneurship as they do to CSR. This finding parallels the extant literature, which points out that entrepreneurs pay attention to both social responsibility initiatives and business opportunities (Shane and Venkataraman 2000). The foregoing conclusion is consistent with the need to defend the importance of a business mentality (Dyduch 2008; Lv et al. 2021) simultaneously with ensuring companies' sustainability through social, economic, and environmental strategies (Fisher et al. 2020). The present results thus indicate that the CSRE-s provides an accurate approximation of corporate socially responsible entrepreneurs' mentality. This measurement tool reinforces prior research that supports CSRE as an effective economic policy management strategy (Raimi et al. 2015) since the CSRE-s covers entrepreneurship's business and social benefits (Porter and Kramer 2003).

The current findings verify that most characteristics supported by previous studies of entrepreneurship and CSR attitudes are appropriate for measuring these traits together. However, for corporate socially responsible entrepreneurs, the variables related to risk assumption failed to add any clear value (i.e., ENTR36 and 38), which contradicts the idea of risk taking's association with entrepreneurial innovation (Blesa et al. 2009; Shafique and Kalyar 2018). Further research is thus needed to analyze corporate socially responsible entrepreneurs' willingness to take risks because this trait can be a defining characteristic of these individuals in small and medium-sized firms.

In addition, the CSRE-s results show that specific items related to employee participation (i.e., ENTR44 and ENTR45), which had been previously identified by Prahalad (2006, 2010) as entrepreneurship characteristics, do not appear to add any information. This outcome could be due to the present scale's inclusion of commitment to employees in Factor 2 of the CSR social dimension, in which this trait is conceptualized as a broader commitment than that offered by the entrepreneurship dimension alone. A firm conclusion cannot be advanced until further cause-effect analysis is conducted, but the current findings may imply that corporate socially responsible entrepreneurs' commitment to and bond with their employees are motivated more by their sense of social responsibility than by actual CSR strategies. This possible relationship could further reinforce the need to incorporate CSR into entrepreneurial activities from the beginning rather than as a mere formality to satisfy stakeholders. The CSRE-s can be said to be an efficient measurement tool that identifies socially responsible entrepreneurs' specific traits, thereby encouraging these individuals' creation of value by tackling social problems with solutions based on academic studies and the knowledge economy approach (Carayannis and Grigoroudis 2016).

6 Results and critical conceptualization of corporate socially responsible entrepreneur

The data gathered with the CSRE-s facilitated an initial conceptualization of entrepreneurs associated with CSRE. This theoretical framework was developed using the features and dimensions combined to form the scale, which was based on microeconomic models of the behavior of economic agents with special characteristics that differentiate them from other entrepreneurs. This research's theoretical goal was to define these traits through economic constructs and relationships.

Corporate socially responsible entrepreneurs' integration of CSR into their entrepreneurial initiatives determines these individuals' unique characteristics, which are reflected in their company management practices. The resulting conceptualization of this type of entrepreneur understands them as individuals to whom the traits measured with the CSRE-s can be applied. The scale defines these characteristics to reflect managers' actions in companies operating in a perfect market. The traits were not designed for oligopoly or monopoly markets because this would exclude performance traits present in a perfect market, such as risk taking or market leadership. The CSRE-s's limitations thus include that the scale was formulated to measure corporate socially responsible entrepreneur characteristics in terms of business performance rather than macroeconomic environments.

The proposed conceptualization makes three assumptions about this type of entrepreneur.

- First, in a company, they can be identified by their tendency to engage in CSRE (i.e., Factor 1), so these individuals have entrepreneurial personality traits.
- Second, corporate socially responsible entrepreneurs can translate their entrepreneurial characteristics into organizational performance within their company through decisions related to five key dimensions of their firm's performance (i.e., as economic agents): business opportunities, decision making, innovation, risk taking, and market leadership (i.e., Factors 2–6). These individuals can thus express their personal entrepreneurial traits through company management policies, moving from behaving as an entrepreneurial individual to acting as an organization.
- Last, their company's performance includes a focus on stakeholders' social benefit, which derives from the earlier assumption that these entrepreneurs engage in CSR as an manifestation of their entrepreneurial spirit. On a theoretical level, their traits can be measured in six dimensions (i.e., constructs): employee care, inclusive labor practices, product and service quality, business relationships, energy savings, and reduced corporate environmental impacts (i.e., Factors 7–12). These characteristics can move from organizational behaviors to broader initiatives within society (i.e., the stakeholder environment).

Based on the above assumptions, the present conceptual framework confines corporate socially responsible entrepreneurs who engage in CSRE to three areas

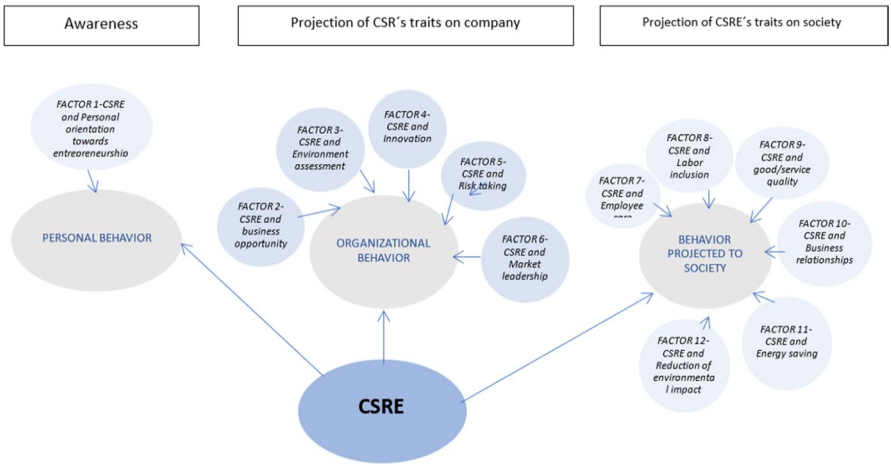

Fig. 5 Theoretical model of corporate socially responsible entrepreneur. *Source*: Authors

of behavior and action: personal, organizational, and social activities. The first is measured in the CSRE-s by one factor, the second comprises 5 dimensions measured by 5 factors, and the third has 6 dimensions assessed by 6 factors (see Fig. 5). Figure 4 above identifies the scale's factors reflecting dimensions associated in the extant literature with these traits (i.e., items), but the combined interpretation of both the entrepreneurship and CSR concepts results in sets of behaviors that together define the corporate socially responsible entrepreneur, as shown in Fig. 5.

The CSRE-s's domains, objectives, constructs, and relationships provide an exploratory definition of corporate socially responsible entrepreneurs that integrates these individuals' personal traits and behaviors with CSR strategies their company implements from the moment it starts. These entrepreneurs develop relevant behaviors in three areas: individual, organizational (i.e., company management practices), and social CSRE. These three main dimensions define corporate socially responsible entrepreneurs. Each area contains secondary dimensions or factors that comprise the main behaviors integrated into personal, organizational, and societal activities.

The map of constructs and relationships in Fig. 5 above shows that, at a microeconomic level, corporate socially responsible entrepreneurs are part of companies that operate in a market in perfect competition (i.e., no oligopoly or monopoly). These individuals see themselves as possessing personal entrepreneurial qualities that can be applied within their organization, thereby providing benefits to their society by integrating CSR into entrepreneurial organizational management practices. Corporate socially responsible entrepreneurs' business strategies can have a twofold impact.

- First, these individuals establish their own differentiating personal traits and integrate them into their company management policies so that diverse stakeholders—and society as a whole—can enjoy positive effects of CSR. Their organi-

zational behaviors are directed simultaneously toward all interested parties (i.e., social performance).
- Second, the benefits of these entrepreneurs' CSRE for stakeholders further enhance these individuals' particular traits due to various factors such as reputational image, strengthened leadership skills, or higher market returns because of differentiation.

The CSRE-s results provide a tentative definition of the corporate socially responsible entrepreneur. However, further research is needed to clarify the multiple relationships within the theoretical model's three main dimensions (i.e., personal, organizational, and societal behavior).

7 Contributions, implications, and limitations

The EFA and CFA confirmed that the CSRE-s is a suitable measurement instrument, and the adjusted scale is almost completely acceptable in terms of the variables' conceptualization and their measurements' definition in accordance with the relevant literature and the different statistical tests conducted. The findings also meet this study's objectives. The sample size (number = 95) is less than 150 observations, but the EFA and CFA results were reinforced with complementary validation tests, indicating that the scale can accurately identify corporate socially responsible entrepreneurs, although the goodness of fit statistics put limitations on this tool's extrapolation to different research populations. This first version of the CSRE-s was used to measure the characteristics that identify this type of entrepreneur, but the scale could be strengthened by using it with samples larger than 150 or 200 observations, which would facilitate a further refinement of each dimension's items.

This research addressed the SRQs defined. SRQ1 was answered by the three CSR dimensions' results (i.e., economic, social, and environmental), SRQ2 by the social CSR dimension's Factors 1 and 2, SRQ3 by the six entrepreneurship factors, SRQ4 again by the social dimension's two factors, SRQ5 by the economic CSR dimension's Factor 1, and SRQ6 by the environmental CSR dimension's Factors 1 and 2. All the results contribute to the achievement of the study's main goal, namely, identifying entrepreneurship and CSR aspects that together define the corporate socially responsible entrepreneur. These traits were amalgamated into a single combined measurement tool that fills gaps in the existing literature.

This research's main contribution is the creation of a reliable, valid scale measuring corporate socially responsible entrepreneurs' characteristics: the CSRE-s. Its items delimit the entrepreneurial traits linked to sustainability practices. The findings add significantly to the extant knowledge about CSR and entrepreneurship, as well as defining a fresh line of empirical research related to the literature specifically focused on CSRE. Thus, this study was the first to apply an empirically robust approach to this new topic, that is, the assessment of corporate socially responsible entrepreneurs. The scale's development determined the research's scope and applicability, and the results contribute to the construction of a more holistic, sustainable model of CSRE.

The CSRE-s defines corporate socially responsible entrepreneurs as individuals who are integrated into a company and who can implement entrepreneurial and integrative organizational management of CSRE projects because of their personal entrepreneurial traits and behavior. This simultaneous integration of entrepreneurship and social responsibility ensures their business management practices offer benefits to the surrounding society's multiple stakeholders. The scale's main dimensions define this type of entrepreneur's potential behavior in organizations, including three areas: personal, organizational, and societal behavior.

First, personal dimension is composed by one factor that involves the necessary personal skills to start the entrepreneurship. Second, the organizational dimension involves five factors or secondary dimensions that categorize corporate socially responsible entrepreneurs' traits according to their managerial decisions and actions' intended outcomes. These individuals' organizational behaviors are thus defined by five constructs: Factor 2—opportunities, Factor 3—environmental commitment, Factor 4—innovation, Factor 5—risk taking, and Factor 6—market leadership. Finally, and in contrast, the third main dimension (i.e., societal) is related to corporate socially responsible entrepreneurs' behavior related to society at large, which generates social benefits divided into six secondary dimensions: Factor 7—employee care, Factor 8—inclusive labor practices, Factor 9—product and service quality, Factor 10—business relationships, Factor 11—energy savings, and Factor 12—reduction of environmental impacts.

The CSRE-s has four practical implications for entrepreneurship:

1. This scale can help future entrepreneurs establish socially responsible business activities by focusing them on CSR from the outset and ensuring that these individuals choose to act based on criteria defined by CSR's three dimensions.
2. The CSRE-s could be useful to public administrators seeking to design policies that support corporate socially responsible entrepreneurs by guaranteeing optimal, responsible decision making.
3. This scale may contribute to university programs' preparation of students for CSRE by filling gaps in how socioeconomic sustainability is taught.
4. The above findings focus on companies outside of the social economy, so the scale can be used to compare the assimilation of CSR concepts by founders of social enterprises and non-social enterprises.

Overall, this study's results can assist diverse economic agents involved in social development.

Another important contribution is the creation of an original, critical theoretical framework that more clearly conceptualizes corporate socially responsible entrepreneurs by integrating three types of behavior: personal, organizational, and societal. The proposed approach is broad enough to encompass the wide variety of situations that entrepreneurs must deal with in order to achieve sustainability and to facilitate the framework's adaptation to disparate contexts and environments. The results also include the creation of an original term—corporate socially responsible entrepreneur—which is not present in the existing literature.

Despite the above contributions and implications, the present investigation has limitations as certain entrepreneurial traits were not validated even though they appear to be obvious and necessary. This first shortcoming, however, may constitute new paths of research based on the inclusion of specific entrepreneurship characteristics in the standard CSR model (e.g., ICSR and ECSR), which could confirm some aspects shared by various areas of study. In addition, a few entrepreneurial features were validated in this exploratory study, but they have low factor loads only considered acceptable in the social sciences. The CFA confirmation eliminated any limitation from a statistical point of view, but the investigative nature of this research may suggest further analysis is needed to adjust the CSRE-s in order to determine whether these traits should be discarded in CSRE contexts. The scale can be expanded and adjusted to fit economic environments other than small enterprises or business sectors other than those to which the measurement tool was applied.

A second limitation is that this study was carried out with a restricted sample, so the results and model adjustment parameters may have been unnecessarily constrained and might be confirmed for larger samples. The small number of traits measured by the selected items combined with the sample size implies caution is needed when extrapolating these characteristics in other settings. Future research is needed to test more concise versions of the CSRE-s that reduce the corporate socially responsible entrepreneur features that can be applied in different environments.

A third limitation is related to the business sector and environment. The research focused on companies outside of the social economy, so the findings could vary according to the operational particularities identified for this sector. As mentioned previously, the CSRE-s should be tested with a sample of entrepreneurs involved in social entrepreneurship to assess whether these individuals' CSR strategies is similar to those of entrepreneurs whose company is not focused on social outcomes. The scale thus needs to be used in different environments to identify the most appropriate corporate socially responsible entrepreneur features for each setting.

Additional studies are required to analyze differences in the defined set of entrepreneurial behavioral traits for larger groups and non-profit entities or social enterprises in different geographical locations. The results for diverse environments would allow universities to adapt their training approach, policymakers to design more inclusive economic CSR strategies and entrepreneurship models, and researchers to improve their contributions to business or economic models from a sustainability perspective. Further work is needed to administer questionnaires to collect additional data in order to consolidate the CSRE-s's applicability. These lines of research would facilitate the specification and diversification of the proposed combined measurement scale to evaluate corporate socially responsible entrepreneurs' characteristics more accurately. The findings could also guide the scale's use in quantitative studies to identify and compare causal relationships via PLS techniques. Finally, future studies need to contrast the different relationships between the theoretical model's main dimensions to expand the concept of corporate socially responsible entrepreneurs.

Appendix: Dimensions, factors, and items that make up the validated scale assessing corporate socially responsible entrepreneurs' traits (CSRE-s)

Entrepreneurial dimensión	
Factor 1: Personal orientation toward entrepreneurship	
ENTR7	I like taking risks
ENTR9	I consider my values and principles to be important
ENTR12	I strive to put myself into others' shoes
ENTR13	I keep my dreams intact
ENTR14	I still have a lot of dreams I want to come true
ENTR15	I try to achieve my goals
ENTR17	I know where to look for solutions and opportunities
ENTR18	I rely on people around me when I have a problem
ENTR19	I see myself as a happy person
ENTR20	I can make sacrifices
ENTR21	I like to work
ENTR22	I have a healthy self-esteem
ENTR23	I value the efforts of others
ENTR24	I consider every possibility
ENTR25	I like to take risks
ENTR27	I know how to accept criticism
ENTR29	I ask for help when I need it
ENTR35	I think that introducing new technologies is essential
ENTR37	I make decisions with uncertain results
Factor 2: Business opportunities	
ENTR2	I like to take the initiative
ENTR4	I fulfill my commitments
ENTR30	I can predict changes and threats
ENTR31	I look for new, unique solutions
ENTR32	I actively search for opportunities
ENTR39	I avoid incurring unnecessary costs
ENTR40	I don't resist change
ENTR41	I can adapt to new situations
ENTR42	I find time to solve problems
ENTR43	I find time to develop new ideas
ENTR46	My company highlights research, development, and innovation in products and technologies
Factor 3: Environmental assessment	
ENTR1	I take others into account when making decisions
ENTR5	I have new ideas
ENTR8	I adapt to changes

ENTR26	I have financial backing
ENTR34	I am inclined to introduce new services
Factor 4: Innovation	
ENTR28	I won't be happy if I don't create my own company
ENTR33	I am in favor of introducing new products
ENTR47	My company has started new businesses and/or launched new products
ENTR48	My company frequently makes significative changes in product or service lines
ENTR49	My company only acts after identifying our rivals' movements
ENTR52	My company avoids confronting rivals after they move on the market
Factor 5: Risk taking	
ENTR53	Because of our dynamic business environment, my company prefers starting with small investments and gradually increasing the resources used
ENTR54	My company prefers undertaking high-risk investment projects
ENTR55	When my company faces a decision involving some degree of uncertainty, we normally adopt a cautious stance
Factor 6: Market leadership	
ENTR3	I can manage a team or lead a project
ENTR50	My company makes moves within our industry that are later copied by competitors
ENTR51	My company is a pioneer in new product, administrative technique, or technology development
Social dimension of CSR	
Factor 7: Employee care	
SOCD4	We pay salaries above the sector's average
SOCD5	Salaries are linked with employees' competencies and performance
SOCD6	We maintain work health and safety levels that go beyond legal requirements
SOCD8	We encourage employees' education and professional development
SOCD9	We have flexible work policies that provide a professional-personal life balance
SOCD10	We consider employees' proposals when making managerial decisions
SOCD11	All employees have equal opportunities
SOCD13	We encourage employees to participate in volunteer activities or in partnerships with non-governmental organizations
SOCD14	Our mechanisms for dialogue with employees are dynamic
Factor 8: Labor inclusion	
SOCD1	We support hiring people at risk of exclusion

SOCD2	We value disabled people's contribution to the business world
SOCD3	We care about improving our employees' quality of life
SOCD7	We are committed to creating jobs (e.g., accepting people with scholarships, hiring specialized unemployed youth, and finding new talent)
SOCD12	We take part in social projects in the community
Economic dimension of CSR	
Factor 9: Product/service quality	
ECOD1	We care about providing high quality products and/or services to our customers
ECOD2	We offer complete, accurate information about our products and/or services to our customers
ECOD3	Respecting customers' rights is a major part of our client management policy
ECOD7	We have effective procedures for managing complaints
Factor 10: Business relationships	
ECOD4	We strive to strengthen stable, collaborative, and mutually beneficial relationships with our suppliers
ECOD5	We are aware of the importance of buying responsibly (i.e., prefer responsible suppliers)
ECOD6	We foster business relationships with companies from our region
Environmental dimension of CSR	
Factor 11: Energy saving	
DM1	We use expendables and product manufacturing processes and/or transformation with low environmental impacts
DM2	We focus on energy savings to achieve greater efficiency
DM3	We place a positive value on introducing alternative energy sources
DM8	We value the use of recyclable packaging
Factor 12: Environmental impact reduction	
DM4	We participate in activities linked to protecting and improving our natural environment
DM5	We know that companies must plan investments to reduce their environmental impact
DM6	We agree with reducing greenhouse gas emissions and waste by recycling materials
DM7	We are predisposed to using, buying, and/or manufacturing eco-friendly products

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Declarations

Conflict of interest The authors declare no potential conflicts of interest with respect to the research, authorship, and publication of this paper.

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