Article

Institutional environments for circular start-ups: Insights from an entrepreneurial European region

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Abstract

Circular start-ups (CSUs) are gaining popularity to radically rethink the linear resource flows of global production systems and adopt ambitious approaches towards a circular economy from inception. For CSUs, the institutional environment is particularly relevant; this is because the complex nature of sustainability challenges requires a deep engagement with institutions to drive transitions from linear to circular practices. This article analyses how and why institutional factors influence CSUs in the highly entrepreneurial region of Catalonia in Spain. Based on a multiple case study, our findings demonstrate that CSUs are affected by informal institutions through founder motivations, their ability to create opportunities and social values. Formal institutions influence CSUs regarding the previous experience of founders, accessible ecosystem actors and supportive laws and regulations. These findings are important for effective policymaking to develop adequate support mechanisms and understand the particular challenges and opportunities CSUs face compared to traditional start-ups.

Keywords

circular business models, circular start-ups, institutional theory, institutional environment, sustainable entrepreneurship

Introduction

Alternative business models are gaining popularity among researchers and practitioners who realise 'business as usual' is incompatible with substantive sustainable development (Geissdoerfer et al., 2020; Ranta et al., 2018; Schaltegger et al., 2016), and who claim that the purpose of

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business must fundamentally change (Bocken et al., 2014). The circular economy constitutes a recent attempt to conceptualise sustainable development by sustainably integrating economic activity and environmental well-being (Murray et al., 2017). Transitioning to a circular economy is considered paramount to overcoming the domination of linear resource flows of global production systems (Ellen MacArthur Foundation, 2013) and minimising resource depletion, waste and emissions (Geissdoerfer et al., 2020). To implement the circular economy at the firm level, circular business models (CBMs), defined as 'business models that are cycling, extending, intensifying and/or dematerialising material and energy loops to reduce resource inputs into and the waste and emission leakage out of an organisational system' (Geissdoerfer et al., 2020: 7), present a promising approach. Henry et al. (2020) define circular start-ups (CSUs) as newly established, autonomous and active enterprises focused on CBMs, seeing them as essential to developing CBMs. This is because, unlike incumbent firms, CSUs adopt holistic and ambitious approaches towards a circular economy as the norm. Also, entrepreneurship has been recognised as a key driver for capturing new circular business opportunities (Suchek et al., 2022) and a major conduit for sustainable products and processes (Hall et al., 2010; Vedula et al., 2022). At present, the logic under which CSUs operate and develop CBMs is little understood (Henry et al., 2020). However, authors advocate using institutional theory to identify context-specific institutional factors affecting CSUs (Levänen et al., 2018). It is argued that institutions are fundamental components affecting business models and are particularly helpful in explaining CBMs within the complex developments of the circular economy (Fehrer and Wieland, 2021).

Recently, institutional theory has been applied to the field of entrepreneurship to understand institutional factors influencing new firm creation (Urbano et al., 2019; Welter, 2011) and to gain insights into how entrepreneurial activity is formed (Bruton et al., 2010). According to North (1990: 3), 'institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction'. As such, institutional theory studies how rules, norms and beliefs influence entrepreneurship and how they can vary across different countries and cultures (North, 1990, 2005; Scott, 2014). Reviewing the literature, very few studies apply institutional theory to understanding business models (Peprah et al., 2022), the circular economy (Fischer and Pascucci, 2017; Ranta et al., 2018) or the development of CBMs. However, an interesting aspect being that some institutional factors are more likely to favour the adoption of CBM development. Responding to calls for studying the effects of institutions on business models (Foss and Saebi, 2017), specifically in the circular economy context (Fehrer and Wieland, 2021), and acknowledging the little-developed state of research in this field, this study explores the question: 'How and why does the institutional environment affect CBMs in a vibrant entrepreneurial context?'

Addressing this research gap is particularly relevant to developing knowledge on adequate support systems for CSUs and scale-ups to enable the transition to a circular economy. To explore the research question, we used a qualitative methodology and conducted a multiple-case study with six founders who created their CSUs in one of Europe's most entrepreneurially vibrant regions: Catalonia in the Northeast of Spain. Emergent themes from the cases allowed us to develop theoretical propositions. The findings reveal informal and formal institutions as crucial factors coevolving with the development of CBMs. Concretely, motivations, the ability to create opportunities and social values are informal institutions that affect CBMs. Formal institutions in the form of previous experience, ecosystem actors and laws and regulations have also been shown to influence CBMs.

Following the introduction, we explain the theoretical background of CBMs, CSUs and institutional theory. Subsequently, we present the research setting of Catalonia and describe the methods of this study. Afterwards, we focus on the findings, discussion and the development of theoretical propositions. Finally, we close with the main conclusions, theory and policy implications, and limitations and future research opportunities.

Theoretical background

In this section, we present the theoretical background by first discussing the literature on CBMs and its evolution from the traditional business model concept. Subsequently, we review the literature on institutional theory, entrepreneurship and CBMs (see Appendix 1 for more details on the literature analysed).

Circular business models

In search for alternatives to 'doing business as usual', CBMs are gaining significant interest from academia and practitioners to drive the transition to a sustainable economy (Bocken et al., 2018). Teece (2010: 173) defines: 'a business model articulates the logic and provides data and other evidence that demonstrates how a business creates and delivers value to customers'. According to Osterwalder et al. (2005), some centre their definition on a more value/customer-oriented approach (Casadesus-Masanell and Ricart, 2010; Teece, 2010), whereas others emphasise an activity/role-related approach (Snihur and Zott, 2020; Zott and Amit, 2010). In line with the former, Richardson (2008) presented a framework that is considered a cornerstone of business model research (Geissdoerfer et al., 2020), with three main components: a value proposition (i.e. products and services that create value and a competitive advantage for the firm), value creation and delivery (i.e. firms resource and capabilities, the organisation of the value chain and the position in the value network) and value capture (i.e. revenue sources). Richardson's (2008) framework is centred upon the concept of value emphasising that the core of a firm's strategy lies in generating exceptional value for customers while securing a larger share of that value compared to competitors; he promoted this business model framework as a bridge between theory and practice and guided choices on how firms should execute their strategy.

Business models became popular as a unit of analysis in entrepreneurship research because of rapidly changing firm environments due to technological advances requiring entrepreneurs to be able to reshape strategic choices and undertake modifications in the structure of their ventures (Trimi and Berbegal-Mirabent, 2012). The business model presents a useful lens to unlock entrepreneurial processes and predict entrepreneurial outcomes (George and Bock, 2011). Particularly in the sustainable entrepreneurship literature, business models serve as mediating devices to analyse entrepreneurial outcomes beyond customer value creation, including social and ecological value creation (Lüdeke-Freund, 2020). This stems from the assumption that new and modified business models are needed to realise sustainable entrepreneurship and drive positive social and ecological effects (Schaltegger et al., 2012). Furthermore, reviews by Geissdoerfer et al. (2018, 2020) identified Richardson's business model framework in the literature on sustainable business models and CBMs as the most relevant framework included in most definitions.

The idea of CBMs is based on the underlying concept of the circular economy (Geissdoerfer et al., 2020) seen as a driver of sustainability (Bocken et al., 2018), fuelling the transition from a linear and open-ended economic system to a circular one (Geissdoerfer et al., 2017; Murray et al., 2017). The circular economy has its theoretical foundations in the field of industrial ecology, emerging in the 1990s and studying alternatives to unsustainable resource use (Bocken et al., 2016; Lüdeke-Freund et al., 2019). According to the Ellen MacArthur Foundation (2013), the circular economy is: 'an industrial system that is restorative or regenerative by intention and design'. The concept of CBMs builds on circular product design, introduced originally by Stahel (1981), distinguishing CBMs from linear models through strategies of slowing (i.e. extending a product's life cycle), closing (i.e. recycling) and narrowing (i.e. using fewer resources) resource loops (Bocken et al., 2016). Geissdoerfer et al. (2020: 7) offer a comprehensive definition of

CBMs as: 'business models that are cycling, extending, intensifying and/or dematerialising material and energy loops to reduce the resource inputs into and the waste and emission leakage out of an organisational system. This comprises recycling measures (cycling), use phase extensions (extending), a more intense use phase (intensifying) and the substitution of products by service and software solutions (dematerialising)'. More recently, authors have shifted attention from the firm-level perspective to the ecosystem perspective. Kanda et al. (2021) and Konietzko et al. (2020) introduced circular ecosystems as more suitable than CBMs for implementing circular economy principles due to the high level of multi-stakeholder collaboration that extends beyond organisational boundaries. In this vein, Zucchella and Previtali (2019) argued that an ecosystem view on CBMs is necessary to capture the different interacting institutions and their compound contribution towards environmental and socio-economic value creation, especially regarding upscaling circular economy transitions.

Institutions, entrepreneurship and CBMs

Institutions offer important insights into how entrepreneurial activity is formed and how entrepreneurial decision-making occurs (Bradley and Klein, 2016; Thornton et al., 2011). Scholars argue that institutional theory also has explanatory power for understanding the creation of CSUs and their CBMs (Fehrer and Wieland, 2021). At its heart, in the context of entrepreneurship, institutional theory emphasises how rules, norms and beliefs influence entrepreneurial activity and how this varies across different countries and cultures (North, 1990, 2005; Scott, 2014). Thus, entrepreneurial actions are shaped by the institutional framework providing the incentive structure to which agents respond (Thornton et al., 2011). Early institutionalists accentuated the social aspects of institutional theory to explain the economic system (Commons, 1974; Mitchell, 1914; Veblen, 1914), criticising prevailing theories focusing on economic efficiencies while omitting social forces and motivations that form an essential part of organisational behaviour (Barley and Tolbert, 1997). Concerning the concept of 'institutions', North (1990) distinguished between informal and formal institutions. Informal institutions are defined as belief systems (e.g. role models and trust), social norms and culture (e.g. entrepreneurial culture, community-wide normative, etc.) and cognitive factors (e.g. skills, risk-taking and leadership). Formal institutions are procedures and costs to create a firm and support mechanisms for new firm creation (e.g. property rights, contracts, procedures, laws and regulations, etc.) (North, 2005). Importantly, North (1990, 2005) emphasises the predominance of the informal over formal institutions arguing that formal institutions can quickly change, having a limited role in influencing human choices, whereas informal institutions are deeply embedded in cultural belief systems that vary across cultures and evolve slowly. Therefore, North argues that formal rules underlay informal constraints and have a stronger explanatory power upon human choices. In this sense, formal institutions have more influence through, for instance, public policies. The effects of informal institutions are less tangible and still not fully understood and moreover, it is noted that informal norms, conventions and forms of conduct tend to resist economic and social change (North, 2005).

Since North's (1990, 2005) framework, a body of literature has emerged exploring different measures for the informal and formal institutions affecting entrepreneurship. In their extensive review of the relationship between institutions, entrepreneurship and economic growth, Urbano et al. (2019) identified that formal institutions are measured in the form of regulations (Braunerhjelm et al., 2015; Busenitz et al., 2000; Calcagno and Sobel, 2014; Meek et al., 2010; Valdez and Richardson, 2013), access to stock markets (Bruton et al., 2009), the financial system (Autio and Fu, 2015; Klapper et al., 2006) and political structures (Chowdhury et al., 2015; Estrin et al., 2013). Concerning informal institutions, Urbano et al. (2019) highlighted role models as the most

prevalent measure for belief systems (Aidis et al., 2008; Bauernschuster et al., 2010; Estrin et al., 2013). Furthermore, community-wide assumptions (Bruton et al., 2009; Sobel, 2008) are analysed regarding social norms. Confidence, motivation and opportunity perception are used as variables to understand the cognitive dimension (Hafer and Jones, 2015; Levie and Autio, 2008). Relatively few studies provide empirical evidence on informal and formal institutions coevolving with sustainable entrepreneurship and the circular economy. Regarding informal institutions, most focus on the cognitive dimension, analysing sustainable motivations (Barba-Sánchez and Atienza-Sahuquillo, 2017; Henry et al., 2022; Kirkwood and Walton, 2010) and opportunity perception (Argade et al., 2021; Hanohov and Baldacchino, 2018; He et al., 2020) as factors influencing sustainable entrepreneurship. Some also focus on social norms and values affecting sustainable entrepreneurship (Alpsahin Cullen, 2021; Lin and Niu, 2018; Meek et al., 2010), whereas belief systems remain underexplored. In terms of formal institutions, Wang et al. (2022) studied the effect of green (entrepreneurship) policy on sustainable development and Zhao et al. (2021) the influence of government support on the performance of sustainable entrepreneurship. So far, little attention has been afforded to how business models evolve depending on the factors within their institutional environment (Peprah et al., 2022), even though it is suggested that individual business models are shaped within an institutional context, presenting rules that foster specific types or ways of offering products and services (Bocken et al., 2019). Hence, there is a need to devote research to the relationship between institutions and business models (Foss and Saebi, 2017). Also, with regard to the circular economy, previous work highlights the role of the broader institutional environment in shaping transitions to a more sustainable and circular economy (Levänen, 2015; Ranta et al., 2018) as economies typically pursue such advancement due to changes in the institutional framework (Levänen et al., 2018).

Building on the extant evidence, and the emphasis on institutions as important influences upon entrepreneurship, business models and CBMs, this study uses North's (1990, 2005) framework of informal and formal institutional factors to understand CBMs. Thus, it is suggested that just as institutions influence and coevolve with entrepreneurship (Thornton et al., 2011; Urbano et al., 2019), sustainable entrepreneurship (Maaßen et al., 2023; Shepherd and Patzelt, 2011; Spanuth and Urbano, 2023) and business models (Foss and Saebi, 2017; Peprah et al., 2022), they also affect CBMs. Based on North's (1990, 2005) framework and the review of institutions, we understand motivation, the ability to create opportunities and social values as variables for informal institutions that coevolve with the development of CBMs. Social norms and values are formalised as informal institutions by North (2005), whereas motivations and opportunity perception appear implicitly in the literature, referring to the cognitive dimension of informal institutions (Urbano et al., 2019). In addition, we examine previous experience, ecosystem actors and favourable laws and regulations as a measurement for formal institutions being influenced by, and coevolving with CBMs. This stems from the frameworks of institutional environments by Gartner (1985) and Gnyawali and Fogel (1994), including a range of environmental factors conducive to entrepreneurship. Responding to the calls for studying the effect of institutions on business models (Foss and Saebi, 2017), specifically in the context of the circular economy (Fehrer and Wieland, 2021), and acknowledging the under-developed state of research in this field we aim to address the question on how and why the institutional environment affects CBMs in a vibrant entrepreneurial context.

Research setting

Catalonia offers a rich ground for this research being considered a highly entrepreneurial region of Europe (Peña-Legazkue et al., 2020). Barcelona, the capital of Catalonia, was identified as one

of the major European hubs for start-up creation, especially in emergent industries (Coll-Martínez et al., 2022). Specifically, Barcelona remains the fifth best ecosystem in the EU to launch a start-up, behind Paris, Berlin, Stockholm and Amsterdam and ahead of Munich, Dublin, Helsinki, Madrid and Copenhagen (ACCIÓ, 2023). The success of Barcelona can be partially attributed to the Catalan Government that, over recent years, worked to develop a rich entrepreneurial ecosystem for founders and investors (Coll-Martínez et al., 2022). According to the Spanish Statistical Office (Instituto Nacional de Estadística (INE), 2021), Catalonia produced 19% of the total Spanish GDP in 2020 and is, regarding its economic activity, comparable to Finland, Denmark or Ireland (Generalitat de Catalunya, 2018). In 2020, Catalonia represented 16.3% of the total Spanish population, with an income level above the national average (114%) (Generalitat de Catalunya, 2020). Additionally, Catalonia represents the region with the most newly created and existing firms in 2021. Almost 20%of the total Spanish firms are located in Catalonia (Instituto Nacional de Estadística, 2021). Also, the export capacity of the Catalan economy has significantly increased. In 2021, exports reached a historical record of 80.564 million euros, 21.5% more than in 2020 (Idescat, 2022). The GEM report of 2020 presents the results of expert interviews on the conditions to start a firm in Europe. Catalonia ranks with 5.2 points highest on a scale from 0 to 10 when compared to other Spanish autonomous communities. The Spanish average is evaluated at 4.7 and vibrant European ecosystems, such as the Netherlands, rank 6.3, close to Catalonia (Observatorio del Emprendimiento de España, 2021). The Catalonian ecosystem is especially valued in the categories of access to physical infrastructure and services (6.6), access to commercial and professional infrastructure (5.9) and support by governmental programmes (5.9) (Observatorio del Emprendimiento de España, 2021).

The region's dynamism is further proven by the 'European Entrepreneurial Region' award given to Catalonia in 2012 and to Barcelona in 2023. The award is granted by the European Commission to regions with outstanding and innovative entrepreneurial policy strategies (European Committee of the Regions, 2023). Barcelona received the award in 2023 for its efforts in developing a more sustainable, inclusive and resilient economic system. The city established the 'Barcelona Green Deal 2030', an action plan aiming to become an efficient digital and technological region while emphasising social fairness (European Committee of the Regions, 2023). The plan entails specific actions to facilitate economic activity, such as reducing bureaucratic barriers to business creation. Also, in 2020, the business start-up tax for entrepreneurs was eliminated and a series of other tax measures and subsidies have been implemented. Moreover, the city council offers in investment funds to promote firm creation (Ajuntament de Barcelona, 2021). Another strong point of the entrepreneurial ecosystem in Catalonia is the financial support provided to start-ups. As a recent report by the Agency for Business Competitiveness (ACCIÓ, 2023) shows, 47% of start-ups based in Catalonia have received public or private financing or help from subsidies. In 2022, Catalonia has captured 1.65 million euros through investments in start-ups, 4.3% more than the year before. Moreover, Catalonia is actively engaged with circular economy principles by rethinking and redesigning business models, products and processes, extending product lifecycles and recovering value from discarded products (Generalitat de Catalunya, 2021). The sectors in Catalonia with the most firms involved in circular economy projects are agri-food (22%), clothing and fashion (10%) and construction (9%). According to estimates by the Catalan government, 626 firms offer business-to-business solutions for the circular economy in Catalonia, employing 32,856 people. The circular economy's turnover is estimated at around 11,014 million euros, representing 4.6% of the total Catalan GDP. Furthermore, of the 626 firms, 93% are SMEs with less than 250 employees (Generalitat de Catalunya, 2021), indicating the type of business most likely to engage in circular economy principles.

Methods

This study aims to address the research question 'How and why does the institutional environment affect CBMs?' We chose an exploratory method as the most appropriate for 'how' and 'why' questions in underdeveloped research areas with nascent theoretical underpinnings (Edmondson and Mcmanus, 2007), such as the influence of the institutional environment on CSUs. Specifically, we applied a multiple case study approach, using six cases from the highly entrepreneurial region of Catalonia.

Case selection

Six cases were selected that, after careful screening, promised to be appropriate to build theory (Eisenhardt, 1989; Eisenhardt and Graebner, 2007) on institutional environments influencing CSUs. Cases were selected referencing the framework of Geissdoerfer et al. (2020), categorising four key business model strategies for the circular economy. The case selection entailed covering each of the four CBM strategies conceptualised by Geissdoerfer et al. (2020): cycling, extending, intensifying and dematerialising. We included at least one of each business model strategy to increase the case sample's richness and variation (Eisenhardt, 1989). We selected cases from the recently launched database 'Startupshub Catalonia',[1] openly accessible on the webpage of the Catalan government (ACCIÓ – Agency for Business Competitiveness). The database lists 2000 start-ups founded in Catalonia. The webpage including the database allows for refining the list of total results, providing, among others, a filter for 'Circular Economy'. Applying this filter, only start-ups show identifying as part of the circular economy sector, giving 198 results.

Following Yin (2009), a careful case screening process was followed to select exemplary cases reflecting positive examples of the phenomenon of interest. Table 1 gives an overview of the six selected cases.

Data collection and analysis

For data collection, we applied triangulation using multiple methods to give stronger support to our arguments (Eisenhardt, 1989; Yin, 2009). We combined interview data with secondary sources and observations. We derived secondary source data from screening the case's web pages. Also, the database 'Startupshub Catalonia' (https://startupshub.catalonia.com/list-of-startups) providing basic information on the selected cases (location, founding year, number of employees, industry, funding stage) was useful for secondary sources.[2] Observation data originated from the process of interviewing founders; however, we did not include it in our analysis.[3] In total, we conducted nine semi-structured interviews, of which we only considered six for this study. The three interviews that were not included consisted of (a) a pilot interview undertaken out to refine obsolete questions and consider new aspects of interest, and (b) two more interviews that did not provide sufficient relevant information. We excluded the pilot interview because the questions were not yet sufficiently developed to extract appropriate information. Also, the interviewee in the pilot interview, the marketing manager rather than the founder, could not provide sufficient insight into our questions. We excluded two other interviews as one respondent, although the founder, could not provide adequately detialed responses. Another start-up remained in its ideation stage without having undertaken any business activities therefore, was not suitable for our study. All interviews were recorded and lasted around 40–60 min. We structured the interview into two parts (see Appendix 2); first, asking about the founder's profile, previous professional experience and personal motivations to launch a start-up. Second, we asked about Catalonia as a business environment,

Table 1. Case description.

Case studies	Entrepreneur profile, level of education	Entrepreneur background and experience before start-up	Sector, year of foundation and location	Business activity	Business model strategy (based on Geissdoerfer et al. (2020)
Infinite Athletic	Male, 49, Master of Business Administration	20 years of work experience in tech and finance, founder of previous companies	Fashion and Design, 2021, Barcelona	Transformation of sports waste into performance sports apparel	Cycling
Oimo	Male, 60, Degree in Law, Postgraduate in Finance, Formation in Sustainability Management	16 years of work experience as a lawyer, afterwards executive, entrepreneur and mentor for start-ups	Bioplastics, 2019, Barcelona	Development of marine degradable and compostable plastic packaging	Cycling
Rent-the-Closet	Female, Master of Business Administration	10 years of experience in procurement	E-Commerce, 2021, Barcelona	A platform for rental service of dresses for formal events	Intensifying
WOSH	Male, 52, Degree in Telecommunications Engineering, Executive Development Programme	16 years of work experience as sales director and country manager	Industrial laundry and dry cleaning, 2019, Barcelona	Laundry and dry cleaning on demand	Dematerialising
Jibu H2O	Male, 35, Master in innovation and entrepreneurship	7 years of work experience as a business and corporate banking executive	Food and beverage, 2020, Barcelona	Intelligent water refilling stations	Dematerialising
Eco Baula	Male, 48, High School Degree	20 years of work experience in sales in the chemical industry, founder of previous companies	Detergency, 2015, Barcelona	Sale of ecological cleaning products in reusable plastic bottles	Extending

involvement with stakeholders, perceptions of clients on the new business models, sources of financing and legislative conditions influencing new firm creation. Overall, the questions build on theoretical considerations concerning business models, circular economy and institutions.

We codified data from the semi-structured interviews based on content analysis (Bryman, 2012) analysing the interviews for similarities to identify underlying concepts. Subsequently, we narrowed down these concepts to sub-themes and eventually to substantive themes. We used the qualitative data analysis software MAXQDA 2022 to code key points of data and to search for categories emerging from the theoretical framework used. Therefore, the literature on CBMs and institutional theory offered the terminology to develop labels to codify the data. In particular, in the first part of coding, we aimed to understand the CSUs' business model, borrowing the theoretical lens of Richardson's (2008) framework and Geissdoerfer et al.'s (2020) extension, adding circular economy considerations. Subsequently, in the second round of coding, we tried to better understand the institutional factors affecting the CSUs therefore, coding with reference to North (1990, 2005) for informal and formal institutions.

Findings and discussion

In the following section, we discuss the findings on institutional factors influencing the six start-ups and their business models. We suggest six theoretical propositions as a basis for further theory building. From the empirical evidence, several institutional factors emerged influencing the six case study firms. Table 2 gives an overview of the cases and their CBMs, classified into value proposition, value creation and delivery and value capture.

Institutional factors influencing the value proposition of CBMs

In their value proposition, firm founders noted to which customer needs they responded; hence, which bundles of products and services were offered creating value for the customer (Richardson, 2008). CBMs build their value proposition on practices such as reuse, repair, refurbishing, sharing models, offering long-lasting products or providing a service instead of a product (Bocken et al., 2016; Geissdoerfer et al., 2020; Lüdeke-Freund et al., 2019). For instance, two of the cases based their value proposition on recycling materials that would otherwise be wasted (Oimo and Infinite Athletic). Another two focused on reuse to reduce overall material consumption (Eco Baula and Rent-the-Closet). WOSH offered a service instead of a product, and Jibu H20 supplied long-lasting water fountains making plastic bottle consumption obsolete (see Table 2). To understand the underlying factors influencing entrepreneurs in constructing the value proposition of their CBMs, institutional theory has much to offer. Specifically, the cases revealed that a founder's previous experience and their motivation to create a CSU are key factors influencing the value proposition of CBMs.

Previous experience. Previous experience, consisting of a founder's educational background and work experience, proved to be a key factor influencing the CBM value proposition. Most founders had an educational background in business administration (see Table 1) and acquired either a degree or a qualification from a business school. However, the founding team in three cases also included a co-founder with specific expertise in either material sciences, engineering or industrial design. Regarding an educational background in sustainability or circular economy, only one founder had formally specialised in sustainable management. The others acquired knowledge on sustainability issues and the circular economy by 'learning by doing'. The evidence suggests that the educational background in business administration, mostly acquired from business schools,

Table 2. Business models of circular start-ups in Catalonia.

Business model component		Cases	Infinite athletic	Oimo
Value proposition		Main products/services Customer segments/markets Customer needs/problems	Recollection of old tennis rackets from the region of Barcelona, recycling into durable sportswear made of 100% polyester	Development of marine degradable and compostable plastic packaging to give alternatives to the industry for single-use plastic
Value creation and delivery		Key value chain elements Core competencies Resources and capabilities	Network of local collaborators collecting tennis rackets and old garments High level of collaboration and interdependence among stakeholders in the value chain High capabilities in material sciences	Collaboration with plastic suppliers to create bioplastics from them Knowledge of eco-design and polymer engineering
Value capture		Revenue streams Cost drivers Revenue model	Sale of sportswear through online shop	Sale of bioplastics to the industry
		Cases	Rent-the-closet	WOSH
Value proposition		Main products/services Customer segments/markets Customer needs/problems	Rental service of dresses offering high-quality dresses for special events Platform to lend dresses to other platform users against a commission	On-demand laundry and dry-cleaning service with home delivery and collection service through mobile app Convenience and time savings for customers
Value creation and delivery		Key value chain elements Core competencies Resources and capabilities	Collaboration with multiple stakeholders such as wedding planners, hotels and theatres Value creation for a variety of stakeholders, such as advertisement for brands, access to dresses for lower cost for users, and an overall decrease in resource use	Offering a service instead of a product Digitalisation of the traditional sector of laundry and dry cleaning Use of industrial high-quality machinery saving energy and water compared to domestic washing machines
Value capture		Revenue streams Cost drivers Revenue model	Recurrent revenues from the service of offering dresses for rental Increased long-term profit margins with a growing number of users and more available dresses in stock	Recurrent revenues from a monthly subscription to the laundry service

(Continued)

Table 2. (Continued)

	Cases	Jibu H2O	Eco Baula
Value proposition	Main products services	Intelligent water refilling stations in private and public spaces to avoid plastic pollution from water bottles	Sale of ecological cleaning products that are dissolvable tablets to be mixed in water together with a reusable plastic bottle
	Customer segments/markets		
	Customer needs/problems	Provision of sustainability metrics to companies due to reduced plastic pollution	Countering plastic contamination and toxic emissions from conventional cleaning products
Value creation and delivery	Key value chain elements	Core competencies on technological aspects (sensors, software) of water fountains	High capabilities in chemical science
	Core competencies		Simplification of value chain, compared to traditional cleaning products (small size, lightweight, easy to export)
	Resources and capabilities	Production from mostly recycled materials	Collaboration of a few local stakeholders based on the Metropolitan area of Barcelona for paper and plastic packaging
Value capture	Revenue streams	Sale of water refilling stations	Revenue from the sale of tablets and durable plastic bottles. Long-term profit margins are expected due to lower transportation costs compared to conventional cleaning products and a simple value chain (efficiency gains in operations)
	Cost drivers	Rental of water refilling stations for 24 months	
	Revenue model		

positively influenced the founders on their path to becoming self-employed. However, to holistically address sustainability challenges and implement circular economy principles, the founder's educational background may not have fully equipped them with the necessary competencies; instead, the entrepreneurs acquired such skills through other ways.

Generally, education was found to be an important driver for the decision to become self-employed (Robinson and Sexton, 1994). Higher levels of education increase the likelihood of starting a business (Block et al., 2013). Entrepreneurial education is considered to positively influence entrepreneurial competence (Lv et al., 2021), while entrepreneurial education is offered to broader student groups outside of traditional business schools (Thrane et al., 2016) to have greater outreach. Scholars criticise the lack of sustainability training provided by business schools and their 'profit-first-mentality' while claiming the reorientation of university curricula towards sustainability (Lourenço et al., 2012). They also point out the need for mediating key competencies preparing future entrepreneurs to understand the complexity of transformation processes and interdependencies among systems (Biberhofer et al., 2018). Fichter and Tiemann (2018) focused on factors influencing university support for sustainable entrepreneurship – a starting point for research on how appropriate university systems could be designed to stimulate sustainable entrepreneurship. Building on their findings, more research is needed studying the influencing factors that could transform higher education systems towards preparing future sustainable entrepreneurs.

In addition to their educational background, the founders had many years of work experience that assisted them when creating their own business; having expert knowledge of their respective sectors meant they knew exactly what processes they wished to transform and improve. Through years of work experience, they built a network of contacts. One founder pointed out his experience in positions of higher management and expertise in the sector of his co-founder that proved to be very beneficial and a key precondition to positively influencing the team in their CBMs' value proposition. The founder explains:

> I am a telecommunications engineer [. . .]. I worked eleven years in companies like Sony. I worked three years in Samsung, and two in LG, occupying quite high positions as a commercial manager, country manager, and so on. But it was not until the last seven years that I occupied the position as the general director in Spain of the manufacturer of industrial laundry machinery that is called 'Girbau'. [. . .] There I met my partner [. . .]. He has been in this sector for more than 20 years [. . .].

He continues, explaining how his practical work experience, helped him to build the bridge between science and the market and to eventually use this experience for his business idea.

The founder of Infinite Athletic points out:

> It is difficult to go against the supply chain. This is why being older helped us because we knew that we would have to go at the origins of the machinery [the conventional supply chain] and push from there while a younger person might have said, well I leave it here. We, that we coincide with the whole supply chain, we were able to develop something nobody else was able to develop. That is to say, to start from the material itself. Why? Because we have more experience, we have more contacts.

Previous work experience has been studied as part of the external environment influencing entrepreneurs (Gnyawali and Fogel, 1994). In his seminal work, Gartner (1985) suggested multiple dimensions of the external environment influencing new firm creation, including previous work experience. More specifically, Cooper (1985) emphasised the role of incubator organisations, such as those where entrepreneurs worked before founding their firms finding that their new firms were closely related to that of the incubator organisations demonstrating the importance of the

founder's industry-specific experience. Also, Cooper and Park (2008) discovered that incubator organisations fundamentally shaped an entrepreneur's technical and commercial experience, emphasising that the trigger to recognise an entrepreneurial opportunity often comes from within the incubator organisation. In addition to providing related experience in similar sectors (Muñoz-Bullon et al. 2015), remaining in the same industry also influenced the success of new firms (Hashai and Zahra, 2022; Oe and Mitsuhashi, 2013). Specifically for knowledge-intensive innovative entrepreneurial firms (as is the case for the six cases), it has been noted that firms having founders with the same industry experience are more likely to survive and that the combination of different types of founder experience (that is the case for three of the cases) positively affects performance (Gifford et al., 2021).

Future research needs to study the differential effect of the educational background and work experience of sustainable entrepreneurs that leads them to create firms of social and environmental value. Notably, human capital theory and the work of Becker (1962) provide a useful lens to conduct a broader study on the interplay of education, previous experience and opportunity recognition of sustainable entrepreneurs. Building on the demonstrable importance of the previous experience of the founders, we suggest:

> *Proposition 1 (P1): Previous experience, consisting of the founder's educational background and work experience, will positively influence the value proposition of the CBM.*

Motivations. A further factor influencing the start-up value proposition is founder motivation. Entrepreneurial motivation plays an important role in business creation (Barba-Sánchez and Atienza-Sahuquillo, 2017). Sustainable entrepreneurs were found to be motivated by green values and have lower financial return motives, compared to traditional entrepreneurs (Kirkwood and Walton, 2010). Also, they were characterised as being motivated to transform an industry towards higher environmental and social performance (Hockerts and Wüstenhagen, 2010). The founders all had strong motivations to limit pressures on the environment by reducing natural resource consumption (environmental motivation), social motivations to address societal inequalities and the desire for self-realisation in the workplace.

Concerning environmental motivations, one founder states:

> My parents are from Andalusia. When I was a child, I spent summers there and they cut the water because of drought. [. . .] They only opened it maybe three hours a day. [. . .] And you start seeing this in many towns of Spain and if we do not do anything immediately, this will happen [. . .]. Soon, in ten years, in five years, [. . .] but if we do not take immediate action, it will happen in Barcelona, in Madrid, we will have areas in Madrid that will be without water [. . .]. Within 40 to 50 years, Spain can become a desert. What are we waiting for?

Another founder answered the question on the motivation to founding the start-up:

> 10 million bottles [. . .]. Only in Spain, 10 million plastic bottles go to the market every day [. . .] and only 20% of this are recycled, nothing more. The rest ends up polluting the oceans, etc. This number is brutal, bearing in mind that in Spain, there is potable water in 99% of the areas that is drinkable. [. . .] So what we do is, we ask what is missing?

Findings show the environmental motivations of founders, as informal institutions, influence their business model value proposition. This is not surprising as most prior research classifies CBMs to be specifically addressing environmental issues (Geissdoerfer et al., 2020; Henry et al., 2022;

Pieroni et al., 2019). In addition, social motivations were an important influence. Our interviews uncovered how four founders integrated social motivations in their CBMs' value proposition by employing people through labour integration programmes (Eco Baula), making dresses available for women beyond standardised sizes contributing to social inclusion (Rent-the-Closet), directing a percentage of annual sales to social actions (Jibu H2O) and creating a foundation to realise social projects (Oimo). One founder explains:

> Last year we had very few sales from the previous year, we anyway wanted to do a social action and what we did was to donate one of our water fountains to a school in Valencia. It is a school that works with children who are at risk of social exclusion. So this is a bit of the path that we want to go.

By also including this social dimension, the four founders demonstrate they are pursuing a triple-bottom-line of economic, social and environmental values, just as found for CSUs (Henry et al., 2022) and sustainable entrepreneurship (Anand et al., 2021; Belz and Binder, 2017; Sarkar and Pansera, 2017). Henry et al. (2022), after interviewing 57 CSU founders, revealed that they were motivated by social altruism and to holistically generate social, environmental and economic value; however, they barely formalise this social component compared to the environmental one. Our findings point in the same direction and help paint a new image of CSU founders who have been more associated with embracing ideas around technological innovation, focusing mainly on environmental efficiency gains in the production process.[4] However, based on our interviews, we also raise the question of whether founders may retrospectively include social aspects into their business model to be able to communicate a triple-bottom-line approach to the public.

Furthermore, the evidence indicates that the entrepreneurs are driven by self-realisation. One founder reveals: 'It is a mix of believing in ourselves and [. . .] not wanting to continue more with this employment model where you do things that do not encourage you.'

Another one states:

> I worked for multinationals, and I obtained [. . .] very good results [. . .]. And you start thinking, I want to do this for myself, why not? You have to try [. . .]. I was making the company rich, and why do I not try this for myself?

The founder's desire for self-realisation appears to be grounded in strong and persistent attitudes including positivity, the willingness to work hard, take action and put new ideas into practice and be capable of managing fears of failure. The founder of 'Rent-the-Closet' explains: 'I always liked the idea of being an entrepreneur in the way that I like to take action and even very small achievements like signing the documents, you have to celebrate them because you did it by yourself.' In this vein, and in relation to the desire for self-realisation, entrepreneur attitudes towards fear of failure are interesting to consider; all experienced such fears and see them as part of the process of self-realisation. One remarked regarding fears of failure: 'No, I have had many failures in my life, and in the end, well, you try out things, and sometimes they work out, sometimes not, and it's okay.' Another one noted: 'When you start, you do not experience fears of failure because you are so euphoric. This gives you a lot of strength'. And the founder of 'Rent-the-Closet' stated, 'Without fear, the challenge is not big enough'.

Fears of failure offer rich opportunities for a better understanding of entrepreneurial motivation (Cacciotti et al., 2016; Morgan et al., 2016). Precisely, Busenitz and Lau (1996) elaborated a model of entrepreneurial cognition based on the entrepreneur's personal variables, suggesting that entrepreneurs have a high tolerance for risk-taking, a strong belief in being able to influence their locus of control and high achievement motivation. However, according to Hoogendoorn et al. (2019),

sustainable entrepreneurs have a different risk attitude and perception compared to regular entrepreneurs seeing more institutional barriers and are also more likely to experience fears of failure. This is because of the more complex stakeholder relationships with which sustainable entrepreneurs engage; therefore, suggesting they require different forms of institutional support. Overall, we need more research on the underlying cognitive processes leading to strong environmental and social motivations of CSU founders compared to regular ones and considering their lack of institutional support and higher risk perceptions.

Given the strong motivations to not only address environmental and social issues but also the desire for self-realisation, and in light of the literature, we suggest:

Proposition 2 (P2): A founder's strong motivation (environmental, social and self-realisation) will be positively linked to the value proposition of CBM.

Institutional factors influencing the value creation and delivery of CBMs

The value creation and delivery component of a business model describes the architecture of the value chain and the main resources and capabilities of the firm (Richardson, 2008). CBMs create and deliver value through, for instance, high technological capabilities, 'slow and close-the-loop' capabilities, the simplification of transport and logistics to save resources or consumer education to prevent overconsumption and waste (Geissdoerfer et al., 2020). The case firms create and deliver value through high capabilities in technology, engineering, chemistry and material science. Also, close collaborations with local stakeholders have been shown to be relevant when creating and delivering value (see Table 2). Furthermore, in our study, founder abilities to create opportunities affect the CBM's value creation and delivery component, just as the social values of society.

Ability to create opportunities. A founder's ability to create opportunities is a crucial component influencing the CBM's value creation, as the case evidence shows. All founders create opportunities to address sustainability issues, such as plastic pollution or overconsumption of clothes which then end up in landfills. Furthermore, their ability to create opportunities is strongly linked to their core competencies and capabilities, forming part of the CBM's value creation and delivery component (Geissdoerfer et al., 2020) because they enact upon opportunities, starting from a product or service they wish to improve, rather than spotting an external market opportunity. There is a long history of analysing opportunity issues (McMullen and Shepherd, 2006; Ramoglou and McMullen, 2022; Ramoglou and Tsang, 2016; Sarasvathy, 2001; Shane, 2000). Venkataraman (1997) defined the field of entrepreneurship as 'the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited'. In their seminal article, Shane and Venkataraman (2000) emphasised the nexus of opportunities and enterprising individuals as core to the field. Alvarez and Barney (2007) opened the debate on whether opportunities are discovered or created by entrepreneurs; hence, whether they exist independently of entrepreneurs and result from exogenous shocks (discovery) or whether they come into existence only through the enactment of entrepreneurs (creation). Davidsson (2015) further claimed a general lack of construct clarity, suggesting reconceptualising the frame of entrepreneurial opportunities to distinguish several factors conditioning the entrepreneurial process (external enablers, new venture ideas and opportunity confidence). In our study, the evidence indicates that the realisation of a business opportunity comes, for the majority of founders, from seeing unsustainable products or services and having a specific idea of improvement, enhancing sustainability and

circular practices. The founder of Jibu H2O who worked on the start-up's value proposition during his final master project explains:

> The point is the problem [. . .] There was not really an external motivation. It was not something that, let's say, presented itself as a potential business opportunity in the first place, and we thought, hey there is a possible business.

Also, the founder of Eco Baula describes how the idea for starting the business derived from the product and its process of production that the founder considered unsustainable:

> My background is in commercials. So I was for 25 years the commercial in service of the chemists. These doctors and these very very very intelligent persons do not leave a room and all their knowledge is in books[5] What we did was, you took the solid material, mixed it like a hot chocolate and filled up the bottles. Wow, and why don't we go back to Mother Nature, and take the solid raw material?

In this vein, the founder of Infinite Athletic states:

> The truth is that the idea was on the table and one of the co-founders, we played tennis and paddle, and inside of the shops we saw how they threw away material. So, the idea emerged from the product itself, not from the market. But we saw that the market was more and more demanding sustainable things, and we saw that the majority of brands talk nonsense and that there is a product missing that is truly sustainable and well done technically.

The co-founders considered the market and its opportunities and noted a generally rising demand for sustainable products; however, they did not conduct more detailed market research regarding their product, leading them to spot a market gap to which they could respond. The founder of OIMO also explains that have started the business based on the product, specifically, his co-founder proposed the idea after having finished his degree in industrial and product design. However, he further explains that 'afterwards the external circumstances [market opportunities] as well helped to consolidate this'. Overall, the founders identified opportunities for specific problems where they searched for a solution to overcome unsustainable practices. This builds on previous literature identifying market imperfections (such as environmental externalities) (Cohen and Winn, 2007) and the identification of a social or ecological problem and the solution to it (Belz and Binder, 2017; Eller et al., 2020) as the base for sustainable entrepreneurial opportunities. Some founders had a deep knowledge of the sector and therefore knew how to improve specific value chains or material use. Others were influenced by individual experiences or university studies. This reflects earlier studies highlighting knowledge of the natural and communal environment as an important factor influencing sustainable opportunity recognition (Hanohov and Baldacchino, 2018). Importantly, most founders saw a business opportunity taking the idea of their product or service as the starting point rather than having spotted a market gap. However, they also consider the market and its developments.

The founders, therefore, did not simply discover opportunities and react to market gaps. By identifying social and ecological problems and solutions they pushed to overcome unsustainable practices and realise systemic changes to eliminate or reduce negative externalities caused by the market. The founders challenged existing market developments rather than embraced them for individual benefit. As described by Schaltegger et al. (2018), opportunities related to sustainability are created intentionally and collectively because sustainability issues often take root outside of markets and represent economic "disopportunities". CSU founders act upon their values even though a clear market demand may not be evident. Also, many CBMs operate against the traditional market rules of economic growth – for example when introducing sharing platforms, long-lasting products, or

eliminating the need for product ownership.[6] Furthermore, CSU founders usually engage with a wide range of stakeholders, including NGOs and governments, co-creating solutions that might not have been 'discovered' in a more isolated and competitive entrepreneurial approach.

Accordingly, returning to Alvarez and Barney (2007), we suggest that the value creation and delivery of CBMs is influenced by founders creating, rather than discovering, entrepreneurial opportunities. Future research on the opportunity perceptions of sustainable entrepreneurs is needed to better understand the interplay of founderknowledge of the environment and industry experience leading to opportunity creation. This is important to build an adequate support system to stimulate the opportunity creation of CBMs. We suggest the following proposition:

Proposition 3 (P3): The ability to create opportunities will positively affect the value creation and delivery of CBMs.

Social values. According to the founders, social values influence the CBM's value capture and delivery as firms rely on the support of clients and stakeholders to operate in the long run. The founders gave insights into their perception of society's social values based on the attitudes and behaviours of clients and stakeholders towards their new business models embracing circular economy principles. In effect, the founders expressed a certain degree of sensitisation and awareness of environmental issues positively influencing their CSUs. For instance, some founders described that, concerning plastics production, society and governments push for change (Oimo). The founder of JIBU H2O stated that many people are sensitive to the issue of plastic pollution. But even though the founders acknowledge a certain degree of environmental awareness captured in the social values, they pointed out how challenging it is to change consumer behaviour. For instance, the founder of JIBU H2O explains:

> In various parts of Catalonia and as well in Spain, tap water has a very bad reputation. So, to fight against this perspective or this idea that the world has already internalised is a bit difficult. [. . .] Because you have to fight against two things. You have to fight against the idea that they already have formed and against the well-done advertisement – that they spend millions in advertisement and marketing.

Therefore, even though there is a change noticed in environmental awareness, the firm struggled to go against deeply rooted social values that show scepticism towards new products and services that enhance environmental conditions and embrace circular economy principles. In this vein, the founder of Rent-the-Closet said that she was convinced that people understand the purpose of her business model and are aware of the issues of fast fashion. However, she claimed that having awareness of the problem is not enough, and people must act and put their values into practice. The founder of WOSH was very enthusiastic and persuaded that society sees the value of his business model. He saw the only threat to his business in unstable conditions such as the COVID pandemic and the Ukrainian war stoking fear and causing people to save money. Therefore, even though social values might be changing towards environmental awareness, disruptive events could destabilise this development.

Two founders (Oimo and Infinite Athletic) point out that people are not willing to pay a lot more for an ecological product in comparison to a conventional product, explaining:

> For the same price yes, for a more expensive price, no. [. . .] We have to ensure that the prices are more or less equal or with a small price difference. But a culture like this is starting to generate.

Other founders are more pessimistic, such as the founder of Eco Baula:

> We are in a country that fills us the mouth with ecology, but nobody wants ecology. Here not, here it is bleach. See, who most sells, it is Mercadona,[7] two litres and cheap and pure chemistry, you know? So, unfortunately, this is a bit like Quijote who fights against the windmills.[8]

The evidence illustrates that overall, there is a certain degree of sensitivity towards ecological problems. However, the status quo still prevails and social values manifested in attitudes and behaviours lead to purchasing conventional and unecological products due to reasons such as price, inertia to change habits or insecurities about the future ensuring consumers focus on saving money. Urbano et al. (2010) found evidence for a changing social context with rising awareness of social and environmental problems that proved to be stimulating for sustainable entrepreneurship. Our findings show this to be counterintuitive and the founders express how social values are rather hindering the creation and delivery of value. As such, the described phenomenon is explained in the literature as the 'green attitude-behaviour gap' – a discrepancy between the favourable attitudes of consumers towards environmental matters and actual purchasing behaviour (Adrita and Mohiuddin, 2020; ElHaffar et al., 2020; Park and Lin, 2020; Vermeir and Verbeke, 2008). Several explanations for such a discrepancy exist with evidence for a variety of impeding factors shaping environmental attitudes as part of social values, such as moral maturity, age or inertia in purchasing behaviour (Bray et al., 2011). Acknowledging that sustainable entrepreneurs do not operate in a vacuum, but depend on customers to purchase their products and services, suggests that more research is needed on how social values form and can be influenced. It is especially important to understand how to overcome the 'green attitude-behaviour gap', to know how to scale circular products and services beyond niche markets and to possibly implement industry-wide CBMs.

Based on the case evidence and the previous literature, we therefore suggest:

Proposition 4 (P4): Social values will be negatively associated with the value creation and delivery of CBMs.

Institutional factors influencing the value capture of CBMs

Value capture forms an important component of the business model, describing the revenue and cost structure of a firm (Richardson, 2008). CBMs capture value through new kinds of revenue models such as revenues based on services (subscription, rental or leasing contracts), high-quality and durable products or long-term cost savings due to reduced costs of resource inputs (use of recycled parts rather than buying new parts) (Geissdoerfer et al., 2020). Some institutional factors were found that especially influence the value capture of CBMs. Notably, the case evidence indicates that accessible ecosystem actors and supportive laws and regulations are important for CBMs to achieve and maintain financial sustainability and hence to capture value over time.

Ecosystem actors. The entrepreneurial ecosystem view focuses on local conditions conducive to entrepreneurship, especially the agency of entrepreneurial actors to transform local contexts (Wurth et al., 2022). Important actors in an entrepreneurial ecosystem include social networks, investment capital, universities and economic policies that work to create supportive environments for entrepreneurial activity (Spigel, 2017). Scholars emphasise the importance of entrepreneurial ecosystems, especially in light of entrepreneurship and sustainable development (Volkmann et al., 2021), considering that sustainable ventures may require different support systems than traditional entrepreneurship (Neumeyer and Santos, 2018). Also for CBMs, entrepreneurial ecosystems are particularly relevant as key

facilitators to create system-wide value and to upscale the circular economy (Kanda et al., 2021). In this study, the founders describe having relied on a variety of support systems forming part of the entrepreneurial ecosystem in Catalonia to capture value for their business model. For instance, the founders built on the support of science parks, incubators or public and private financing. Reflecting previous literature noting that science parks act as key players for the development of entrepreneurial ecosystems (Germain et al., 2022), the founder of Eco Baula benefitted from strong synergies when working in the Barcelona Science Park.[9] Also, the founder of JIBU H2O refers to the importance of networking and getting involved with incubators to benefit from the business ecosystem.

> In Catalonia, the entrepreneurial ecosystem is good always when you know where to join. If you are inside some kind of circle, for example, Barcelona Activa,[10] or ACCIÓ[11] that is the accelerator of the government, you can interact.

He also commented on the support from the university incubator of the business school where he studied in Barcelona to develop and design the business model.

The founder of Infinite Athletic specifies regarding their involvement with incubators:

> We are in a European programme that is called Circoacts.[12] And here in Spain, we are with the textile incubator and accelerator of Mataró which is called Reimagin Textil.[13] So, both of them helped us to work on our Pitch, to give communication and visibility.

It is proposed that incubators act as effective tools to support circular economy transitions (Millette et al., 2020) and help overcome network problems within ecosystems (van Rijnsoever, 2020). However, even though the founders describe an existing entrepreneurial ecosystem providing support, their opinions are not free of criticism noting long bureaucratic processes and describe the actual usefulness of the programmes as minimal: 'We participated in incubators and accelerators that helped us to define our Pitch but, in the end, we realised that it was about our experience, we have a quite nice background'.

The founder of Eco Baula mentions:

> In the end, you have to decide what you want. If you want to go and compete so that they help you, to win awards like actors in the movies, or you forget about competing because, in the end, it is the same. It is a lot of bureaucracy and many problems. It does not help.

Empirical evidence suggests the importance of incubator programmes upon the sustainable impact of entrepreneurship (Karahan et al., 2022). Public and private financial support, crucial issues within the entrepreneurial ecosystem, offered relevant formal support with the founders having acquired the help of differing types and amounts. Lüdeke-Freund (2020) found that the ability of new business models to sustain themselves in the long run crucially depends on the financial support of public and private institutions. Regarding public funding, it has been demonstrated how government incentives significantly affect the performance of sustainable entrepreneurship (Zhao et al., 2021) and how access to public funding and incentives improves a firm's ability to launch eco-innovations (Cecere et al., 2020). Public support was, to some degree, accessible to most founders, but the amount of money provided appeared to be not always sufficient. Two start-ups obtained a loan by National Innovation Company (ENISA),[14] a state-owned firm providing financial help to small and medium enterprises in Spain and integrated into the Spanish Government's Ministry of Industry, Commerce and Tourism. The founder of WOSH explained:

> At ENISA we got 225 million euros, okay? This help is there [. . .]. It has good conditions, but it is a loan that you have to pay back. [. . .] So for sure this helps to take off. But in the end, I always recommend to any entrepreneurs that start now to operate mostly by bootstrapping.

Two start-ups were supported by funds of the European Union, Infinite Athletic by a fund specialised in the circular economy (CircoActs) and Oimo by various European funds. The founder stated: 'We won several grants. We are now working on a grant from the European Union that is looking for unicorns, very powerful start-ups. The programme is called Accelerators. It has an endowment of 2 million euros'.

Public financing was available and helpful. However, private financing prevailed, and founders largely sustained their start-ups through private investors including family and friends. As the founder of Infinite Atheltic states: 'We won one, two, or three awards. But most of it, 90%, is private'. Eco Baula faced a similar situation:

> Baula was born in 2015, and until 2019 it spent almost one million euros. Until one million euros, there was nothing, nothing, nothing, not from part of banks nor entities [. . .]. It was many years that I did not get a salary.

Wüstenhagen and Menichetti (2012) noted how public institutions are necessary to provide financial resources in the early stages of innovation cycles, for instance, when firms are in the process of piloting their project. Private investors tend to step in at later stages when the level of risk is lower and businesses start the phase of commercialisation. In this sense, one founder explained: 'Here they always give you money if you have an attraction [business idea] that is already advanced, it is more complicated'. Furthermore, the founders commented on the lack of financial support for specifically ecological projects. Several of them claimed the need for financial resources for circular projects enhancing social and environmental well-being. The founder of JIBU H20 explained: 'I am going to clarify: There is no facility for a start-up that is sustainable compared to one that is not. It is simply [a help] for entrepreneurship'.

In this vein, the founder of WOSH claimed:

> For all these reasons at the level of environmentalism, for real, WOSH is a revolution that, in my opinion, should be a lot more supported. There should be more help, not only for WOSH but for industries that favour the care of the environment. In the end, the planet is our home, no? Where do we want to live in the next 20 years?

In her study on the financing of sustainable start-ups, Bocken (2015) criticised a general lack of suitable venture capitalists willing to invest in sustainable start-ups, missing knowledge on the topic, market short-termism and a lack of moral engagement of sustainable investment teams. Also, Bergset (2018) pointed out a generally low number of venture capitalist firms that specialise in funding green start-ups. She highlighted some characteristics of green start-ups that lead investors to hesitate, such as high risk, high investment sums and long investment horizons. In line with this, Hoogendoorn et al. (2019) explained how financial difficulties for sustainable entrepreneurs arise due to the lack of standardised measures of sustainable business performance, complicating the determination of returns on investment. Future research needs to analyse how ecosystem actors should operate to specifically support sustainable entrepreneurship and CBMs. Also, acknowledging the problems for investors offering capital to sustainable businesses, research is needed to explore how such firms can reach financial sustainability and whose role it is to provide support. Overall, even though some founders criticise the business ecosystem and its insufficient support mechanisms, a certain level of dependence on ecosystem actors is clearly given. Building on the case evidence and scholarly work on the importance of ecosystem actors, precisely science parks, incubators and public and private financing, we propose:

Proposition 5 (P5): Accessible ecosystem actors will positively influence the value capture of CBMs. However, the lack of support for specifically ecological and circular projects will slow down their value capture.

Laws and regulations. To capture value, legislation and regulations at the European level appear to favour the six CSUs. This is reasonable considering that the start-ups implement business models in line with new legislation on environmental issues such as the European Green Deal.[15] Moreover, considering that start-ups, compared to incumbent firms, implement holistic business models characterised by high levels of circularity from commencement (Henry et al., 2022), they are not negatively affected by environmental regulations as usually, they are already compliant with minimum standards.

One founder reflected upon the question regarding how or if any regulations hindered the start-up and the implementation of its CBM:

> No, the opposite. That is to say, in 2025 the European community has pushed countries so that those who put products on the market have to recover it. So this is going to totally change the textile market. For example, Coca-Cola will have to recover its plastic bottles, and also the friends of Coca-Cola [. . .]. For the textile sector [. . .] they have to really think about doing circularity. I am going to recover my garments to have material for the new garments. In this case, in fact, we have not seen it yet in reality, but it seems to me like a very good rule that the European community is implementing.

Also, the founder of Oimo, who had already acquired funds from the European Union and was working on more proposals for further European funding deemed the EU regulations to be very positive:

> Let's see, the world is evolving and overall the awareness of sustainability issues. There is a long way to go, but there is the Green Deal, and there is the agenda 2030 to 2050 with a lot of commitments [. . .]. I think the foundations have been laid, and now it is just a matter of executing such foundations.

Regarding the country and regional level, the founder of WOSH referred to a new law for start-ups in Spain launched in 2022; however, he commented that the support emerging from this law was directed to private investors who will benefit from tax incentives. Jibu H20 commented on their experience in trying to collaborate with local government to provide water fountains in public spaces noting the slow process for gaining the required authorisation.

Rent-the-Closet comments:

> So, I think that now the government, they are more focused on food. Fashion is starting now, but it's true that for the time discussing this project with some people, it is like you're just like another platform like renting clothes. Well, Zara, H&M, Primark and other ones, it's just another shop selling clothes [. . .]. So that's why like, this is the challenge [. . .] because they just see it as a platform renting cloth.

The information given by the founders allows for a tentative conclusion that, on a European level, legislation and regulations have a positive impact in supporting start-ups that enhance circularity and implementation of CBMs. At the country and regional level, however, even though support is available in the form of, for instance, new start-up legislation, regulative support for the actual realisation of circular projects remains challenging.

In this vein, another founder explained:

> There is a lot of goodwill [at the European level] but this goodwill has not yet been translated into concrete actions [. . .]. Because there is a lot of legislation that is being introduced, but this legislation is sometimes

> not punitive. And the deadlines are not met either[16] [. . .]. The Sustainable Development Goals (SDGs) helped us a lot, but I hang up the SDGs and nothing happens, they're just hanging there.

As such, he referred to positive efforts from the European Union; however, the real challenge is putting good intentions into practice at the country and regional level where supportive laws and regulations appear to be sparse. These findings align with previous literature suggesting regulation can act as a dynamic force affecting small business performance by stimulating adaptation to new regulations and influencing relationships with small firm stakeholders (Kitching et al., 2015). In addition, EU environmental policy is considered to be supportive in driving the adoption of circular economy innovation (Cainelli et al., 2020). Specifically, Tura et al. (2019) found that directive laws, EU regulations and standards act as drivers supporting the introduction of new business models for the transition to a circular economy. Also, just as noted in the findings above, recently introduced laws at the regional level providing incentives to entrepreneurs do not significantly affect new firm formation (Verheul et al., 2009). In the context of the circular economy, Tura et al. (2019) identified region-specific laws and regulations as barriers against circular economy solutions. In this vein, Dagilienė et al. (2021) emphasised that local government only weakly implements such circular economy solutions; they are not regulated and most focus on waste management rather than including wider circular implementation strategies. Considering that CSUs are embedded in local contexts, it is important to direct future research towards the local level to identify such laws and regulations hampering or supporting their development.

In light of the case evidence and scholarly contributions, we suggest:

Proposition 6 (P6): Favouring laws and regulations at the European level will be positively associated with the value capture of CBMs while lacking legislative support at the regional level will slow down CBMs in capturing value.

Conclusions

CBMs, and the way they create, deliver and capture value by slowing, closing and narrowing resource loops (Bocken et al., 2016) are gaining popularity. However, little attention has been paid to the institutional environment influencing CBMs to reveal whether some factors are more conducive to stimulating the development of CBMs. In this article, we used institutional theory (North 1990, 2005) to investigate how and why the institutional environment affects CBMs in the entrepreneurial region of Catalonia in Spain. Importantly, this study generates evidence that CBMs do not emerge in a vacuum but depend on their institutional environment. A core finding is that informal institutions that shape founder motivations, and their ability to create opportunities, will positively influence CBMs, whereas social values are negatively associated with the value creation of CBMs. Also, previous experience, accessible ecosystem actors and enabling laws and regulations positively influence the development of CBMs.

Theory implications

The study contributes by being one of very few studies to adopt an institutional lens to understand CSUs and CBMs. The extant literature to date has extensively studied the influence of institutions on entrepreneurial activity (Bradley and Klein, 2016; Bruton et al., 2010). For instance, the effect of informal institutions such as social norms; confidence, motivation and opportunity perception (cognitive dimension) and role models (belief systems), as well as formal institutions (political

structure, procedures, regulations, property rights, etc.) has been analysed. We add to the previous literature by suggesting that, for studying sustainable entrepreneurship and CSUs, informal institutions in the form of motivations, the ability to create opportunities and social values are crucial factors. We also propose that previous experience, ecosystem actors and enabling legislation and regulations are important formal institutional factors influencing CSUs. We emphasise that for studying CSUs, influencing factors in the institutional environment differ from those affecting traditional entrepreneurship. By so doing, we offer a starting point for future research on appropriate support systems for such firms. In addition, our study offers a novel contribution to Richardson's (2008) business model framework by specifying influencing institutional factors for each of the business model components (value proposition, value creation/delivery, value capture). This is especially interesting as the business model lens became popular to enable easy segmentation of venture structures into units of analysis to allow for modifications in rapidly changing environments (Trimi and Berbegal-Mirabent, 2012). In the sustainable entrepreneurship literature, business models serve as mediating devices to analyse entrepreneurial outcomes beyond customer value creation, including social and ecological value creation (Lüdeke-Freund, 2020). The analysis of influencing factors for each business model component is, therefore, especially useful in complex contexts such as the domain of sustainability research and practice, strongly characterised by uncertainty and interdependencies.

Policy implications

In practical terms, this article is relevant as we highlight the lack of support systems required for CSUs to flourish. Local and central governments need to increase their understanding of CBMs to support firms that create wealth for society and the environment and enhance collective well-being. Considering the general inertia towards ecological consumption, incentives – not barriers – that support sustainable entrepreneurs and ecological consumers are essential. Specifically, there should be government intervention implementing the 'polluter pays' principle[17] while subsidising social, ecological and circular products and services. In terms of accessible ecosystem actors, more are needed to support sustainable and circular projects rather than searching for short-term financial returns in conventional start-ups. Measurement tools of sustainable business performance can help to reduce investor uncertainty (Hoogendoorn et al., 2019). Also, the design of win-win business models gives incentives to ecosystem actors as such businesses are mutually beneficial for various stakeholders.

In addition, entrepreneurship education needs to be restructured to develop multidisciplinary knowledge beyond business education (Hägg and Gabrielsson, 2020). The current entrepreneurship education model is overly focused on economic outcomes and positive economic stereotypes of entrepreneurs. However, such models ignore the realities future entrepreneurs will have to act upon, such as climate change, social disparities and a planet with scarce resources raising doubts about the prevalent economic growth model within which traditional entrepreneurship is based (Loi et al., 2022). In reality, the impacts of existing programmes on sustainability and entrepreneurship, usually brought forward by business schools, are questionable as they are based on conventional management programmes with little room for critical learning (Obrecht, 2016). Collaborative and participatory approaches are needed to teach entrepreneurship education (Del Vecchio et al., 2021) to drive human agency for the common good (Obrecht, 2016).

Finally, even though European legislation and regulations positively influence the development of CBMs, regional efforts need improvements. Regional laws providing incentives and subsidies for circular entrepreneurs are particularly important considering the urgency of action to tackle

sustainability challenges at the regional level where support for bottom-up organisations could be a highly effective way to implement timely and decentralised solutions to climate change, resource depletion and social inequality. In effect, regional governments need to increase their understanding of CBMs as oftentimes, circular entrepreneurs face difficulties due to the novelty of their business models finding little support in the regional environment.

Limitations and future research

This study has some limitations from which future research lines can be derived. As mentioned earlier, we studied CBMs in the highly entrepreneurial region of Catalonia in Spain. In a different regional context, the findings might have been quite different. Future research could, therefore, conduct a similar study in different contexts, such as another region of Spain or in other entrepreneurially vibrant regions of Europe to compare findings and draw further conclusions. Also, comparing start-up hubs to rural regions with weak institutional support would be an interesting approach, giving insights into varying informal and formal support mechanisms among regions and their influence on CBMs. Then, as is always the problem with case study research, the evidence is based on few examples and the explanatory power of the findings could be questioned. Future research should enlarge the number of cases under study to identify more explicit patterns within the data. Also, the number of interviews conducted for each case could be increased and go beyond interviewing the founders as other involved parties may give interesting insights on the institutional environment. In this vein, Peprah et al. (2022) suggested stakeholder theory as useful for understanding how different stakeholder relationships shape business models and their evolution. Interviewing representatives of governmental support programmes, incubators or volunteers involved with the specific cases could give valuable insights. Even though we followed the approach of sampling for theoretically appropriate cases (Eisenhardt, 1989), we noted that high variation among cases and the emergent themes from the evidence were not always explicit. Future research should therefore review appropriate case selection processes. One strategy to control for high variation among cases could be to focus on a specific kind of CBM (such as only recycling firms or only firms of the sharing economy) and, as mentioned earlier, enlarge the number of cases and interviews to extract clearer emergent themes. It is also acknowledged that we analysed the six cases at a specific moment in time. To achieve a broader picture, it would be interesting to conduct a longitudinal study to better understand how and under what institutional influences CBMs evolve.

Finally, future research needs to begin measuring the sustainability outcomes of entrepreneurship (Vedula et al., 2022). In our case, this could be achieved by building on holistic and radical CBM examples going beyond simple approaches of substituting and recycling materials, but bringing forward systemic changes. Nevertheless, this article presents a starting point for future research to shed light on institutional environments that could favour the successful development of CBMs in different contexts.

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Notes

1. https://startupshub.catalonia.com/list-of-startups.
2. We used the collected secondary sources to integrate the information that emerged from interviews only when we considered it necessary to gain a more complete and nuanced understanding of the situation. Otherwise, we relied only on interview data to avoid misinterpretations due to dealing with multiple data sources.
3. We focused on institutional factors influencing circular business models and questions were straightforward to answer by founders. In this sense, it was not important to observe how interviewees acted. Also, we did not have to 'dig' for answers as it might be the case for more sensitive topics. For instance, in cases of analysing circular economy and sustainability outcomes, founders may answer in a way of overstating their start-up's impact. In such a context, observations can be relevant to rigorously evaluate interview data.
4. In sustainability research, an exclusive emphasis on technological innovation for achieving sustainability goals is questioned. While aiming to enhance production efficiency by minimising resource use, this method alone does not address the rise in resource consumption driven by economic growth and market expansion, leading to an overall net increase in resource usage (Giampietro, 2019).
5. The founder describes himself as the bridge between scientists and the detergent market. He perceives the scientists he collaborated with as having a rigid mindset, being out of touch with market realities, and unnecessarily complicating the detergent production process. Therefore, he saw a business opportunity in radically simplifying the value chain to cut production and transportation costs.
6. Such business models incentivise their customers to consume less. This goes against the logic of capitalistic markets building on economic growth and its direct link to increased material throughput, referring to the amount of resources extracted, processed and eventually disposed of in an economy. As economies grow, they consume more raw materials and produce more waste, leading to environmental concerns (Hickel and Kallis, 2020), precisely what CSU founders try to prevent.
7. Mercadona is one of the biggest Spanish supermarket chains.
8. This quote takes reference to the novel 'Don Quijote de la Mancha' by Miguel de Cervantes (1605). Don Quijote fighting against the windmills is one of the novel's most famous passages when Don Quijote, the foolish knight and his squire, Sancho Panza, are going through the fields of Castilla. When seeing the windmills, Don Quijote, in his delusion, thinks that the windmills are menacing giants and starts attacking them. In this sense, 'fighting against the windmills' means fighting or opposing issues or people out of foolishness when in reality there is no enemy or threat.
9. https://www.pcb.ub.edu/en/.
10. https://www.barcelonactiva.cat/en/home.
11. https://www.accio.gencat.cat/en/inici/index.html.
12. https://circulareconomy.europa.eu/platform/en/education/circo-training-programmeme-creating-business-through-circular-design.
13. https://reimaginetextile.com/en/.
14. https://www.enisa.es/.
15. The European Green Deal is a far-reaching policy initiative by the European Union designed to make the continent carbon-neutral by 2050 and promote sustainability across various sectors of the economy and society (https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en).
16. The founder refers to meeting the European Commission's climate targets expressed in the European Green Deal to, for instance, cut greenhouse gas emissions by at least 55% by 2030 to set Europe on a responsible path to becoming climate neutral by 2050.

17. The 'polluter pays' principle mandates that those who cause environmental pollution should bear the costs of managing or remedying its effects. This principle aims to internalise the external costs of pollution, incentivising polluters to reduce their environmental impact (OECD, 2008).

References

ACCIÓ (2023) *Barcelona & Catalonia Startup Hub*. Barcelona.

Adrita UW and Mohiuddin MF (2020) Impact of opportunity and ability to translate environmental attitude into ecologically conscious consumer behavior. *Journal of Marketing Theory and Practice* 28: 173–186.

Aidis R, Estrin S and Mickiewicz T (2008) Institutions and entrepreneurship development in Russia: A comparative perspective. *Journal of Business Venturing* 23: 656–672.

Ajuntament de Barcelona (2021) *Barcelona Green Deal: A New Economic Agenda for Barcelona 2030*. Deloitte.

Alpsahin Cullen U (2021) Exploring a circular business model: Insights from the institutional theory perspective and the business model lens. *International Journal of Entrepreneurship and Innovation* 24: 58–69.

Alvarez SA and Barney JB (2007) Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal* 1: 11–26.

Anand A, Argade P, Barkemeyer R, et al. (2021) Trends and patterns in sustainable entrepreneurship research: A bibliometric review and research agenda. *Journal of Business Venturing* 36: 106092.

Argade P, Salignac F and Barkemeyer R (2021) Opportunity identification for sustainable entrepreneurship: Exploring the interplay of individual and context level factors in India. *Business Strategy and the Environment* 30: 3528–3551.

Autio E and Fu K (2015) Economic and political institutions and entry into formal and informal entrepreneurship. *Asia Pacific Journal of Management* 32: 67–94.

Barba-Sánchez V and Atienza-Sahuquillo C (2017) Entrepreneurial motivation and self-employment: Evidence from expectancy theory. *International Entrepreneurship and Management Journal* 13: 1097–1115.

Barley SR and Tolbert PS (1997) Institutionalization and structuration: Studying the links between action and institution. *Organization Studies* 18: 93–117.

Bauernschuster S, Falck O and Heblich S (2010) Social capital access and entrepreneurship. *Journal of Economic Behavior & Organization* 76: 821–833.

Becker GS (1962) Investment in human capital: A theoretical analysis. *The Journal of Political Economy* 70: 9–49.

Belz FM and Binder JK (2017) Sustainable entrepreneurship: A convergent process model. *Business Strategy and the Environment* 26: 1–17.

Bergset L (2018) Green start-up finance – where do particular challenges lie? *International Journal of Entrepreneurial Behavior & Research* 24: 451–575.

Biberhofer P, Lintner C, Bernhardt J, et al. (2018) Facilitating work performance of sustainability-driven entrepreneurs through higher education: The relevance of competencies, values, worldviews and opportunities. *The International Journal of Entrepreneurship and Innovation* 20: 21–38.

Block JH, Hoogerheide LF and Thurik AR (2013) Education and entrepreneurial choice: An instrumental variables analysis. *International Small Business Journal* 31: 23–33.

Bocken NMP (2015) Sustainable venture capital – Catalyst for sustainable start-up success? *Journal of Cleaner Production* 108: 647–658.

Bocken NMP, Short S, Rana P, et al. (2014) A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production* 65: 42–56.

Bocken NMP, de Pauw I, Bakker C, et al. (2016) Product design and business model strategies for a circular economy. *Journal of Industrial and Production Engineering* 33: 308–320.

Bocken NMP, Schuit CSC and Kraaijenhagen C (2018) Experimenting with a circular business model: Lessons from eight cases. *Environmental Innovation and Societal Transitions* 28: 79–95.

Bocken NMP, Boons F and Baldassarre B (2019) Sustainable business model experimentation by understanding ecologies of business models. *Journal of Cleaner Production* 208: 1498–1512.

Bradley SW and Klein P (2016) Institutions, economic freedom, and entrepreneurship: The contribution of management scholarship. *Academy of Management Perspectives* 30: 211–221.

Braunerhjelm P, Desai S and Eklund JE (2015) Regulation, firm dynamics and entrepreneurship. *European Journal of Law and Economics* 40: 1–11.

Bray J, Johns N and Kilburn D (2011) An exploratory study into the factors impeding ethical consumption. *Journal of Business Ethics* 98: 597–608.

Bruton GD, Ahlstrom D and Puky T (2009) Institutional differences and the development of entrepreneurial ventures: A comparison of the venture capital industries in Latin America and Asia. *Journal of International Business Studies* 40: 762–778.

Bruton GD, Ahlstrom D and Li H (2010) Institutional theory and entrepreneurship: Where are we now and where do we need to move in the future? *Entrepreneurship Theory and Practice* 34: 421–440.

Bryman A (2012) *Social Research Methods*. 4th edn. Oxford: Oxford University Press.

Busenitz LW and Lau C-M (1996) A cross-cultural cognitive model of new venture creation. *Entrepreneurship Theory and Practice* 20: 25–40.

Busenitz LW, Gómez C and Spencer JW (2000) Country institutional profiles: Unlocking entrepreneurial phenomena. *Academy of Management Journal* 43: 994–1003.

Cacciotti G, Hayton JC, Mitchell JR, et al. (2016) A reconceptualization of fear of failure in entrepreneurship. *Journal of Business Venturing* 31: 302–325.

Cainelli G, D'Amato A and Mazzanti M (2020) Resource efficient eco-innovations for a circular economy: Evidence from EU firms. *Research Policy* 49: 103827.

Calcagno PT and Sobel RS (2014) Regulatory costs on entrepreneurship and establishment employment size. *Small Business Economics* 42: 541–559.

Casadesus-Masanell R and Ricart JE (2010) From strategy to business models and onto tactics. *Long Range Planning* 43: 195–215.

Cecere G, Corrocher N and Mancusi ML (2020) Financial constraints and public funding of eco-innovation: Empirical evidence from European SMEs. *Small Business Economics* 54: 285–302.

Chowdhury F, Audretsch DB and Belitski M (2015) Does corruption matter for international entrepreneurship? *International Entrepreneurship and Management Journal* 11: 959–980.

Cohen B and Winn MI (2007) Market imperfections, opportunity and sustainable entrepreneurship. *Journal of Business Venturing* 22: 29–49.

Coll-Martínez E, Jové-Llopis E and Teruel M (2022) The city of start-ups: Location determinants of start-ups in emergent industries in Barcelona. *Growth and Change* 53: 972–1007.

Commons JR (1974) *Legal Foundations of Capitalism*. Reprints of economic classics. Clifton, N.J: Augustus M. Kelley.

Cooper AC (1985) The role of incubator organizations in the founding of growth-oriented firms. *Journal of Business Venturing* 1: 75–86.

Cooper SY and Park JS (2008) The impact of 'incubator' organizations on opportunity recognition and technology innovation in new, entrepreneurial high-technology ventures. *International Small Business Journal* 26: 27–56.

Dagilienė L, Varaniūtė V and Bruneckienė J (2021) Local governments' perspective on implementing the circular economy: A framework for future solutions. *Journal of Cleaner Production* 310: 127340.

Davidsson P (2015) Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization. *Journal of Business Venturing* 30: 674–695.

Del Vecchio P, Secundo G, Mele G, et al. (2021) Sustainable entrepreneurship education for circular economy: Emerging perspectives in Europe. *International Journal of Entrepreneurial Behaviour & Research* 27: 2096–2124.

Edmondson AC and Mcmanus SE (2007) Methodological fit in management field research. *The Academy of Management Review* 32: 1155–1179.

Eisenhardt KM (1989) Building theories from case study research. *Academy of Management Review* 14: 532–550.

Eisenhardt KM and Graebner ME (2007) Theory building from cases: Opportunities and challenges. *The Academy of Management Journal* 50: 25–32.

ElHaffar G, Durif F and Dubé L (2020) Towards closing the attitude-intention-behavior gap in green consumption: A narrative review of the literature and an overview of future research directions. *Journal of Cleaner Production* 275: 122556.

Ellen MacArthur Foundation (2013) *Towards the circular economy: Economic and business rationale for accelerated transition*. Available at: https://archive.ellenmacarthurfoundation.org/assets/downloads/publications/TCE_Report-2013.pdf

Eller FJ, Gielnik MM, Wimmer H, et al. (2020) Identifying business opportunities for sustainable development: Longitudinal and experimental evidence contributing to the field of sustainable entrepreneurship. *Business Strategy and the Environment* 29: 1387–1403.

Estrin S, Korosteleva J and Mickiewicz T (2013) Which institutions encourage entrepreneurial growth aspirations? *Journal of Business Venturing* 28: 564–580.

European Committee of the Regions (2023) *Three European regions awarded for their innovative and sustainable entrepreneurial strategies to overcome the COVID-19 pandemic*. Available at: https://cor.europa.eu/en/news/Pages/eer-award.aspx (accessed 23 March 2023).

Fehrer JA and Wieland H (2021) A systemic logic for circular business models. *Journal of Business Research* 125: 609–620.

Fichter K and Tiemann I (2018) Factors influencing university support for sustainable entrepreneurship: Insights from explorative case studies. *Journal of Cleaner Production* 175: 512–524.

Fischer A and Pascucci S (2017) Institutional incentives in circular economy transition : The case of material use in the Dutch textile industry. *Journal of Cleaner Production* 155: 17–32.

Foss NJ and Saebi T (2017) Fifteen years of research on business model innovation: How far have we come, and where should we go? *Journal of Management* 43: 200–227.

Gartner WB (1985) A conceptual framework for describing the phenomenon of new venture creation. *The Academy of Management Review* 10: 696–706.

Geissdoerfer M, Savaget P, Bocken NMP, et al. (2017) The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production* 143: 757–768.

Geissdoerfer M, Vladimirova D and Evans S (2018) Sustainable business model innovation: A review. *Journal of Cleaner Production* 198: 401–416.

Geissdoerfer M, Pieroni MPP, Pigosso DCA, et al. (2020) Circular business models: A review. *Journal of Cleaner Production* 277: 123741.

Generalitat de Catalunya (2018) *Catalan Economy: The strength of an innovative and outward-looking nation*. Directorate General for Economic Analysis.

Generalitat de Catalunya (2020) Instituto de Estadística de Catalunya. Available at: https://www.idescat.cat/pub/?id=aec&n=414&lang=es.

Generalitat de Catalunya (2021) *Circular Economy in Catalonia*. ACCIÓ Strategic and Competitive Intelligence Unit.

George G and Bock AJ (2011) The business model in practice and its implications for entrepreneurship research. *Entrepreneurship Theory & Practice* 35: 83–111.

Germain E, Klofsten M, Löfsten H, et al. (2022) Science parks as key players in entrepreneurial ecosystems. *R & D Management* 53: 603–619.

Giampietro M (2019) On the circular bioeconomy and decoupling: Implications for sustainable growth. *Ecological Economics* 162: 143–156.

Gifford E, Buenstorf G, Ljungberg D, et al. (2021) Variety in founder experience and the performance of knowledge-intensive innovative firms. *Journal of Evolutionary Economics* 31: 677–713.

Gnyawali DR and Fogel DS (1994) Environments for entrepreneurship development: Key dimensions and research implications. *Entrepreneurship Theory and Practice* 18: 43–62.

Hafer RW and Jones G (2015) Are entrepreneurship and cognitive skills related? Some international evidence. *Small Business Economics* 44: 283–298.

Hägg G and Gabrielsson J (2020) A systematic literature review of the evolution of pedagogy in entrepreneurial education research. *International Journal of Entrepreneurial Behaviour & Research* 26: 829–861.

Hall JK, Daneke GA and Lenox MJ (2010) Sustainable development and entrepreneurship: Past contributions and future directions. *Journal of Business Venturing* 25: 439–448.

Hanohov R and Baldacchino L (2018) Opportunity recognition in sustainable entrepreneurship: An exploratory study. *International Journal of Entrepreneurial Behavior & Research* 24: 333–358.

Hashai N and Zahra S (2022) Founder team prior work experience: An asset or a liability for startup growth? *Strategic Entrepreneurship Journal* 16: 155–184.

He J, Nazari M, Zhang Y, et al. (2020) Opportunity-based entrepreneurship and environmental quality of sustainable development: A resource and institutional perspective. *Journal of Cleaner Production* 256: 120390.

Henry M, Bauwens T, Hekkert M, et al. (2020) A typology of circular start-ups: An Analysis of 128 circular business models. *Journal of Cleaner Production* 245: 118528.

Henry M, Hoogenstrijd T and Kirchherr J (2022) Motivations and identities of 'grassroots' circular entrepreneurs: An initial exploration. *Business Strategy and the Environment* 1: 1–20.

Hickel J and Kallis G (2020) Is green growth possible? *New Political Economy* 25: 469–486.

Hockerts K and Wüstenhagen R (2010) Greening Goliaths versus emerging Davids – Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *Journal of Business Venturing* 25: 481–492.

Hoogendoorn B, van der Zwan P, Thurik R, et al. (2019) Sustainable entrepreneurship: The role of perceived barriers and risk. *Journal of Business Ethics* 157: 1133–1154.

Idescat (2022) *Instituto de Estadística de Cataluña*. Available at: https://www.idescat.cat/indicadors/?id=anuals&n=10453&lang=es.

Instituto Nacional de Estadística (2021) *Directorio Central de Empresas (DIRCE) a 1 de enero de 2021*. Directorio Central de Empresas.

Kanda W, Geissdoerfer M and Hjelm O (2021) From circular business models to circular business ecosystems. *Business Startegy and the Environment* 30: 2814–2829.

Karahan M, Rashid L and Kratzer J (2022) Gearing-up for purpose: The relationship between entrepreneurs' usage of incubation support services and sustainable impacts. *Journal of Cleaner Production* 377: 134315.

Kirkwood J and Walton S (2010) What motivates ecopreneurs to start businesses? *International Journal of Entrepreneurial Behaviour & Research* 16: 204–228.

Kitching J, Hart M and Wilson N (2015) Burden or benefit? Regulation as a dynamic influence on small business performance. *International Small Business Journal* 33: 130–147.

Klapper L, Laeven L and Rajan R (2006) Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics* 82: 591–629.

Konietzko J, Bocken N and Hultink EJ (2020) Circular ecosystem innovation: An initial set of principles. *Journal of Cleaner Production* 253: 119942.

Levänen J (2015) Ending waste by law: Institutions and collective learning in the development of industrial recycling in Finland. *Journal of Cleaner Production* 87: 542–549.

Levänen J, Lyytinen T and Gatica S (2018) Modelling the interplay between institutions and circular economy business models: A case study of battery recycling in Finland and Chile. *Ecological Economics* 154: 373–382.

Levie J and Autio E (2008) A theoretical grounding and test of the GEM model. *Small Business Economics* 31: 235–263.

Lin S-T and Niu H-J (2018) Green consumption: Environmental knowledge, environmental consciousness, social norms, and purchasing behavior. *Business Strategy and the Environment* 27: 1679–1688.

Loi M, Fayolle A, van Gelderen M, et al. (2022) Entrepreneurship education at the crossroads: Challenging taken-for-granted assumptions and opening new perspectives. *Journal of Management Inquiry* 31: 123–134.

Lourenço F, Jones O and Jayawarna D (2012) Promoting sustainable development: The role of entrepreneurship education. *International Small Business Journal* 31: 841–865.

Lüdeke-Freund F (2020) Sustainable entrepreneurship, innovation, and business models: Integrative framework and propositions for future research. *Business Strategy and the Environment* 29: 665–681.

Lüdeke-Freund F, Gold S and Bocken NMP (2019) A review and typology of circular economy business model patterns. *Journal of Industrial Ecology* 23: 36–61.

Lv Y, Chen Y, Sha Y, et al. (2021) How entrepreneurship education at universities influences entrepreneurial intention: Mediating effect based on entrepreneurial competence. *Frontiers in Psychology* 12: 655868.

Maaßen C, Rovira R and Urbano D (2023) A process model for sustainable entrepreneurship: Evidence from a highly entrepreneurial European region. *Journal of Social Entrepreneurship*. Epub ahead of print 20 June 2023. Doi: 10.1080/19420676.2023.2221262

McMullen JS and Shepherd DA (2006) Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *The Academy of Management Review* 31: 132–152.

Meek WR, Pacheco Desiree F, York JG, et al. (2010) The impact of social norms on entrepreneurial action: Evidence from the environmental entrepreneurship context. *Journal of Business Venturing* 25: 493–509.

Millette S, Eiríkur Hull C and Williams E (2020) Business incubators as effective tools for driving circular economy. *Journal of Cleaner Production* 266: 121999.
Mitchell WC (1914) Human behavior and economics: A survey of recent literature. *The Quarterly Journal of Economics* 29: 1–47.
Morgan J, Sisak D, Morgan J, et al. (2016) Aspiring to succeed: A model of entrepreneurship and fear of failure. *Journal of Business Venturing* 31: 1–21.
Muñoz-Bullon F, Sanchez-Bueno MJ and Vos-Saz A (2015) Startup team contributions and new firm creation: The role of founding team experience. *Entrepreneurship & Regional Development* 27(1–2): 80–105.
Murray A, Skene K and Haynes K (2017) The circular economy: An interdisciplinary exploration of the concept and application in a global context. *Journal of Business Ethics* 140: 369–380.
Neumeyer X and Santos SC (2018) Sustainable business models, venture typologies, and entrepreneurial ecosystems: A social network perspective. *Journal of Cleaner Production* 172: 4565–4579.
North DC (1990) *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
North DC (2005) *Understanding the Process of Economic Change*. Princeton, NY: Princeton University Press.
Obrecht J-J (2016) Sustainable entrepreneurship education: A new field for research in step with the 'effectual entrepreneur'. *International Journal of Entrepreneurship and Small Business* 29: 83–102.
Observatorio del Emprendimiento de España (2021) *Informe GEM España 2020–2021*. Santander: Editorial de la Universidad de Cantabria.
Oe A and Mitsuhashi H (2013) Founders' experiences for startups' fast break-even. *Journal of Business Research* 66: 2193–2201.
OECD (2008) *The polluter pays principle: Definition, analysis, implementation*. Paris: OECD Publishing.
Osterwalder A, Pigneur Y and Tucci CL (2005) Clarifying business models: Origins, present, and future of the concept. *Communications of the Association for Information Systems* 16: 1.
Park HJ and Lin LM (2020) Exploring attitude–behavior gap in sustainable consumption: Comparison of recycled and upcycled fashion products. *Journal of Business Research* 117: 623–628.
Peña-Legazkue I, Guerrero M, González-Pernía JL, et al. (2020) *Informe GEM España 2019-2020. Global Entrepreneurship Monitor*. Santander: Editorial de la Universidad de Cantabria.
Peprah AA, Giachetti C, Larsen MM, et al. (2022) How business models evolve in weak institutional environments: The case of jumia, the Amazon.Com of Africa. *Organization Science* 33: 431–463.
Pieroni MPP, McAloone TC and Pigosso DCA (2019) Business model innovation for circular economy and sustainability: A review of approaches. *Journal of Cleaner Production* 215: 198–216.
Ramoglou S and McMullen JS (2022) 'What is an opportunity?': From theoretical mystification to everyday understanding. *Academy of Management Review*.
Ramoglou S and Tsang EWK (2016) A realist perspective of entrepreneurship: Opportunities as propensities. *The Academy of Management Review* 41: 410–434.
Ranta V, Aarikka-Stenroos L, Ritala P, et al. (2018) Exploring institutional drivers and barriers of the circular economy: A cross-regional comparison of China, the US, and Europe. *Resources, Conservation and Recycling* 135: 70–82.
Richardson J (2008) The business model: An integrative framework for strategy execution. *Strategic Change* 17: 133–144.
Robinson PB and Sexton EA (1994) The effect of education and experience on self-employment success. *Journal of Business Venturing* 9: 141–156.
Sarasvathy SD (2001) Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *The Academy of Management Review* 26: 243–263.
Sarkar S and Pansera M (2017) Sustainability-driven innovation at the bottom: Insights from grassroots ecopreneurs. *Technological Forecasting & Social Change* 114: 327–338.
Schaltegger S, Lüdeke-Freund F and Hansen EG (2012) Business cases for sustainability: The role of business model innovation for corporate sustainability. *International Journal of Innovation and Sustainable Development* 6: 95–119.
Schaltegger S, Hansen EG and Lüdeke-Freund F (2016) Business models for sustainability: Origins, present research, and future avenues. *Organization & Environment* 29: 3–10.

Schaltegger S, Beckmann M and Hockerts K (2018) Collaborative entrepreneurship for sustainability. Creating solutions in light of the UN sustainable development goals. *International Journal of Entrepreneurial Venturing* 10: 131–152.

Scott WR (2014) *Institutions and Organizations: Ideas, Interests, and Identities*. 4th edn. California: Sage Publications.

Shane S (2000) Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science* 11: 448–469.

Shane S and Venkataraman S (2000) The promise of entrepreneurship as a field of research. *The Academy of Management Review* 25: 17–226.

Shepherd DA and Patzelt H (2011) The new field of sustainable entrepreneurship: Studying entrepreneurial action linking 'What Is to Be Sustained' with 'What Is to Be Developed'. *Entrepreneurship: Theory and Practice* 35: 137–163.

Snihur Y and Zott C (2020) The genesis and metamorphosis of novelty imprints: How business model innovation emerges in young ventures. *Academy of Management Journal* 63: 554–583.

Sobel RS (2008) Testing Baumol: Institutional quality and the productivity of entrepreneurship. *Journal of Business Venturing* 23: 641–655.

Spanuth A and Urbano D (2023) Exploring social enterprise legitimacy within ecosystems from an institutional approach: A systematic literature review and research agenda. *International Journal of Management Reviews*. Epub ahead of print 14 August 2023. Doi: 10.1111/ijmr.12349

Spigel B (2017) The relational organization of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice* 41: 49–72.

Stahel WR (1981) The product-life factor. In: Orr SG (ed.) *An Inquiry into the Nature of Sustainable Societies: The Role of the Private Sector*. Houston, TX: HARC, pp. 72–96.

Suchek N, Ferreira JJ and Fernandes PO (2022) A review of entrepreneurship and circular economy research: State of the art and future directions. *Business Strategy and the Environment* 31: 2256–2283.

Teece DJ (2010) Business models, business strategy and innovation. *Long Range Planning* 43: 172–194.

Thornton PH, Ribeiro-Soriano D and Urbano D (2011) Socio-cultural factors and entrepreneurial activity: An overview. *International Small Business Journal* 29: 105–118.

Thrane C, Blenker P, Korsgaard S, et al. (2016) The promise of entrepreneurship education: Reconceptualizing the individual–opportunity nexus as a conceptual framework for entrepreneurship education. *International Small Business Journal* 34: 905–924.

Trimi S and Berbegal-Mirabent J (2012) Business model innovation in entrepreneurship. *International Entrepreneurship and Management Journal* 8: 449–465.

Tura N, Hanski J, Ahola T, et al. (2019) Unlocking circular business: A framework of barriers and drivers. *Journal of Cleaner Production* 212: 90–98.

Urbano D, Toledano N and Ribeiro-Soriano D (2010) Analyzing social entrepreneurship from an institutional perspective: Evidence from Spain. *Journal of Social Entrepreneurship* 1: 54.

Urbano D, Aparicio S and Audretsch D (2019) Twenty-five years of research on institutions, entrepreneurship, and economic growth: What has been learned? *Small Business Economics* 53: 21–49.

Valdez ME and Richardson J (2013) Institutional determinants of macro–level entrepreneurship. *Entrepreneurship Theory and Practice* 37: 1149–1175.

van Rijnsoever FJ (2020) Meeting, mating, and intermediating: How incubators can overcome weak network problems in entrepreneurial ecosystems. *Research Policy* 49: 103884.

Veblen T (1914) *The Instinct of Workmanship and the State of the Industrial Arts*. New York, NY: Macmillan.

Vedula S, Doblinger C, Pacheco D, et al. (2022) Entrepreneurship for the public good: A review, critique, and path forward for social and environmental entrepreneurship resesarch. *Academy of Management Annals* 16: 391–425.

Venkataraman S (1997) The distinctive domain of entrepreneurship research: An editor's perspective. *Advances in Entrepreneurship, Firms Emergence, and Growth* 3:119–138.

Verheul I, Carree M and Santarelli E (2009) Regional opportunities and policy initiatives for new venture creation. *International Small Business Journal* 27: 608–625.

Vermeir I and Verbeke W (2008) Sustainable food consumption among young adults in Belgium: Theory of planned behaviour and the role of confidence and values. *Ecological Economics* 64: 542–553.

Volkmann C, Fichter K, Klofsten M, et al. (2021) Sustainable entrepreneurial ecosystems: An emerging field of research. *Small Business Economics* 56: 1047–1055.
Wang XX, Javaid MU, Salameh AA, et al. (2022) Interplay among institutional actors for sustainable economic development – Role of green policies, ecopreneurship, and green technological innovation. *Frontiers in Environmental Science* 10: 1557.
Welter F (2011) Contextualizing entrepreneurship – Conceptual challenges and ways forward. *Entrepreneurship Theory and Practice* 35: 165–184.
Wurth B, Stam E and Spigel B (2022) Toward an entrepreneurial ecosystem research programme. *Entrepreneurship Theory and Practice* 46: 729–778.
Wüstenhagen R and Menichetti E (2012) Strategic choices for renewable energy investment: Conceptual framework and opportunities for further research. *Energy policy* 40: 1–10.
Yin RK (2009) *Case Study Research Design and Methods*. 4th ed. Los Angeles, CA: SAGE.
Zhao M, Liu J and Shu C (2021) Pursuing sustainable development through green entrepreneurship: An institutional perspective. *Business Strategy and the Environment* 30: 4281–4296.
Zott C and Amit R (2010) Business model design: An activity system perspective. *Long Range Planning* 43: 216–226.
Zucchella A and Previtali P (2019) Circular business models for sustainable development: A 'waste is food' restorative ecosystem. *Business Strategy and the Environment* 28: 274–285.

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Appendices

Appendix 1. Literature review on circular business models and institutional theory.

Authors	Year	Title	Journal	Method
Fehrer, Julia A Wieland, Heiko	2021	A systemic logic for circular business models	*Journal of Business Research*	Conceptual
Pietrulla, Felicitas Frankenberger, Karolin	2021	Circular business models: Antecedents, moderators and outcomes	*Academy of Management Annual Meeting Proceedings*	Literature Review
Cullen, Ufuk A	2021	Exploring a circular business model: Insights from the institutional theory perspective and the business model lens	*International Journal of Entrepreneurship and Innovation*	Case Study
Bocken, Nancy Boons, Frank Baldassarre, Brian	2019	Sustainable business model experimentation by understanding ecologies of business models	*Journal of Cleaner Production*	Case Study
Ranta, Valtteri Aarikka-Stenroos, Leena Ritala, Paavo Mäkinen, Saku J	2018	Exploring institutional drivers and barriers of the circular economy: A cross-regional comparison of China, the US and Europe	*Resources, Conservation and Recycling*	Case Study

(Continued)

Appendix 1. (Continued)

Authors	Year	Title	Journal	Method
Levänen, Jarkko Lyytinen, Tatu Gatica, Sebastian	2018	Modelling the interplay between institutions and circular economy business models: A case study of battery recycling in Finland and Chile	*Ecological Economics*	Case Study
Fischer, Aglaia Pascucci, Stefano	2017	Institutional incentives in circular economy transition: The case of material use in the Dutch textile industry	*Journal of Cleaner Production*	Case Study
Levänen, Jarkko	2015	Ending waste by law: institutions and collective learning in the development of industrial recycling in Finland	*Journal of Cleaner Production*	Case Study

Appendix 2: Interview Questions

Short introduction. The following semi-structured interview is directed to start-ups in Catalonia that include principles of the circular economy in their business activity in order to better understand the emerging phenomenon of 'circular start-ups'. Considering that firms are embedded in an institutional environment, the interview specifically revolves around the institutional factors influencing the 'circular start-ups' and whether some institutional factors might be more favouring for stimulating the development of CBMs than others.

PART I – Profile founder/s and start-up

Firm's name
- Address
- City
- Phone
- Email
- Website

Interviewee's data
- Name and surname
- Management position
- Email

Profile of the founder/s
- Gender
- Age
- Level of education (Bachelor/ Master/High School Diploma/PhD Degree/other)
- Previous occupation
- Other occupations additional to work at start-up
- Previous start-ups created
- Entrepreneurial family antecedents

Profile of the start-up
- Legal form
- Age of start-up
- Sector

PART II – Circular business model and institutional environment

Business model and start-up process

1. What is your business activity?/What are you offering?
2. What was your motivation for creating the firm?
3. How do you relate your business activity to the circular economy (slowing, closing, narrowing resource loops)?
4. When creating your firm, did you encounter any major obstacles? (e.g. Regulatory policies, social norms and values)? What was your strategy to overcome them?
5. Did you rely on any formal support organisms in the start-up phase? (e.g. accelerator programmes, incubators, public/private funding)?
6. Did you also rely on any informal support organisms in the start-up phase (e.g. support of family, friends, volunteers, etc.)?
7. How would you describe the business environment for circular start-ups in Catalonia? Would you describe it as favouring or hindering? (e.g. entrepreneurial culture, innovation climate, etc.)
8. What are your attitudes towards entrepreneurship?
9. Do you have any entrepreneurial role models in mind?
10. What about your fear of failure?

Organisation

11. Could you explain which main actors you engage with in your business activity (suppliers, markets, partners, customers)? And what exactly is your position in this value network?
12. How is circularity part of your value chain?
13. Do you think there exist any interdependencies among the net of actors through which your company functions? Do they have any consequences (transaction costs, power relations, coordination problems?)
14. Would you say that your company creates value for multiple stakeholders (society/environment)? If so, for whom?

Sustainability of the firm

15. What are your revenue sources?
16. Could you relate your revenue model specifically to circular economy principles? (e.g. less costs due to exploiting resources that otherwise would be considered waste)
17. Do you still rely on any of the formal/informal support organisms mentioned before to sustain your company? (Private/Public funding, volunteer work, etc.)
18. What are the main opportunities and challenges you see for your firm in the future? Do you think circular firms will become more popular? Why? (Change in regulatory policies, innovation climates, social norms etc.?)