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Circular entrepreneurship: A business model perspective

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ABSTRACT

The circular economy, which takes inspiration from the ‘waste not’ functioning of the ecosystem to propose more resource efficient production and consumption patterns, has attracted the interest of different stakeholders recently. Yet very little is known about the companies that put circular principles at the heart of doing business and their ecological and social sustainability outcomes. Circular entrepreneurship, conceptualised as the *processes of exploration and exploitation of opportunities in the circular economy domain*, is just emerging in the circular economy literature and the empirical evidence about how it is implemented through innovative business models is still limited. Our research illustrates and describes the entrepreneurial process and orientation from a business model perspective of a circular firm - *Wasted Apple* - in the British drinks and beverage industry. We find that entrepreneurial value proposition, value creation and delivery and value capture define our case circular business model. Entrepreneurial orientation is also characterised by *embeddedness*: being entrepreneurial in the circular economy means to create value for the broader system an organisation is part of. Furthermore, the pursuit of ecological and social value is central to the logic of value creation and typifies the entrepreneurial process.

1. Introduction

How to attain a more environmentally and socially sustainable economy continues to be the subject of considerable attention within the business scholarly and practitioners’ communities (Brehemer et al., 2018; Geissdoerfer et al., 2018). Scientific evidence warns that the ecosystem is deteriorating (Global Footprint Network, 2020; WWF, 2020) and so management practitioners and scholars cannot further ignore the call for a radical shift towards more environmentally sustainable forms of production and consumption. The suitability of the principles and practices of value creation within the business community has come under huge scrutiny and a more proactive involvement of corporations is welcomed to steer the transition towards a more sustainable economy (Visser, 2018).

It is within this context, that there is a growing scholars’ and practitioners’ interest in both the entrepreneurial process to address sustainability concerns (Blok, 2018; Kuratko and Morris, 2018), and alternative business models wherein the concept of value creation is expanded to include ecological and social value (Brehemer et al., 2018; Roome and Louche, 2016). In fact, the research and the practice of corporate sustainability has evolved to embrace new concepts such as

sustainable entrepreneurship (Schaltegger et al., 2016a), sustainable business models (Bocken et al., 2014; Morioka et al., 2017) and circular economy (EMF and McKinsey, 2012, and for a recent review: Schögl et al., 2020).

The circular economy (CE hereafter), which proposes the shift towards a more resource-efficient industrial model wherein economic growth is decoupled from the consumption of finite natural resources (EMF and McKinsey, 2012; EMF et al., 2015), has recently attracted the attention of policy makers and business leaders alike. This is the case because of its potential to address ecological and social sustainability concerns and unlock sources of economic and business opportunities (Ranta et al., 2018; Türkeli et al., 2018). Concurrently, the CE has also become the subject of enquiry within the academic community. However, circular entrepreneurship, i.e. the “processes of exploration and exploitation of opportunities in the circular economy domain” (Zucchella and Urban, 2019, p. vii), is just about emerging in the CE literature (Veleva and Bodkin, 2018; Zamfir et al., 2017). Furthermore, empirical investigations about how CE principles are implemented through innovative business models (BMs hereafter) are limited (Francascia et al., 2019; Gregori et al., 2019), especially from the perspective of small organisations and start-ups (Henry et al., 2020). This is

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unfortunate because “circular principles need entrepreneurial innovative spirit to become reality” (Zucchella and Urban, 2019, p. vi) and the development of the BM is a core step to enable the exploration and exploitation of circular opportunities (*ibid.*).

As the CE opens up the way for a wealth of entrepreneurial opportunities and entrepreneurs are crucially important for implementing innovative BMs (Veleva and Bodkin, 2018), this article asks: *how can the entrepreneurial process and orientation of circular firms be described?* We highlight the entrepreneurial orientation from a BM perspective. This is of academic relevance because despite the fact that “the BM is a core building block of the entrepreneurial enactment process” (George and Bock, 2011, p. 102), the study of the BM within the entrepreneurial process is only a recent theme within the entrepreneurship literature (Andersén et al., 2014; Foss and Saebi, 2017) and the environmental and sustainable entrepreneurship literature (Henry et al., 2020). Furthermore, even if entrepreneurship and sustainable entrepreneurship research have been the subject of scholarly attention in the last decade, many studies are conceptual and take either an individual or organisational perspective (Filser et al., 2019).

To elaborate on our argument, we draw on the case study of *Wasted Apple*, a Cornish start-up in the British drink and beverage industry using local apples that would have been otherwise wasted as key resources. Villa Todeschini et al. (2017) have argued that ‘born sustainable’ start-ups, i.e. new entrepreneurial ventures that put sustainability at the core of their business, have received limited attention in the literature so far. Our case study is a pertinent example of a born circular start-up, which gives us the opportunity to fill this relevant research gap.

The remaining parts of this article are structured as it follows. We begin by reviewing the entrepreneurship literature, identifying the key characteristics of entrepreneurs, entrepreneurial process (EP hereafter) and entrepreneurial orientation (EO hereafter) (Section 2.1). We then highlight the principles underlying CE thinking and circular business models (CBMs hereafter) (Section 2.2). Next, we show our research method and strategy (Section 3). Subsequently, we illustrate *Wasted Apple*’s EO and EP (Sections 4 and 5). We then discuss our findings highlighting the challenges encountered in the process of BM implementation, which are rather unexplored in the BM and CBMs literature (Broekhuizen et al., 2018; Sousa-Zemer et al., 2018) (Section 6). We conclude summarising our results and suggesting paths for future research (Section 7).

2. Literature background

2.1. Entrepreneurship, entrepreneurial process and entrepreneurial orientation

Entrepreneurship is a multifaceted phenomenon that cuts across many disciplinary boundaries. It can be defined as an ability to see and seize market opportunities, to develop a profitable initiative, or as the act of creating value through the new combination of already existing elements (Schumpeter, 1934) but not necessarily the novel combination of elements (Masaro, 2016).

Filion (2008) defines an entrepreneur as “an actor who innovates by recognising opportunities” (*who*) makes moderately risky decisions that leads into actions requiring the efficient use of resources and contributing an added value” (p. 7). A typical entrepreneur is attributed an array of distinctive psychological and sociological characteristics such as: risk-taking propensity (e.g., Afandi et al., 2017; Aldrich and Fiol, 2007; Mason and Harvey, 2013); need for achievement (McClelland, 1961); internal locus of control (Ahmed, 1985); strong leadership attitude (e.g., Filion, 2008); independence and autonomy (e.g., Jayawarna et al., 2011; Stephan et al., 2015), and ability to translate thoughts into actions. From the sociological perspective the entrepreneur is a deviant (Kets de Vries, 1977), a socially marginal individual (Mason and Harvey, 2013) and a misfit (Pallotta, 2010).

Central to the debate on entrepreneurship is the EP since it entails

what is necessary for the enactment of entrepreneurship (Westhead and Wright, 2013). Venkataraman (1997) conceptualises entrepreneurship as the process of opportunity recognition, product creation and opportunity exploitation. Bygrave (2004) views the EP in terms of “all the functions, activities, and actions associated with perceiving opportunities and creating organizations to pursue them” (p. 7). The EP consists of several phases that organisations develop subsequently (Bygrave, 2011; Van der Zwan et al., 2012), namely, motivation or intention (Grilo and Thurik 2006; Wilken, 1979), opportunity recognition (Afandi et al., 2017; Bygrave, 2011; Grilo and Thurik, 2006; Shane and Venkataraman, 2000), idea generation (Bygrave, 2011) and opportunity exploitation (Bygrave, 2011; Grilo and Thurik 2006; Shane and Venkataraman, 2000; Wilken, 1979).

An opportunity exploitation can only be achieved when the BM is designed and developed to enable the entrepreneur to do so (George and Bock, 2011; Masaro, 2016). In fact, the BM is viewed as the link between both innovation and value creation (Chesbrough and Rosenbloom, 2002) and opportunity identification and exploitation (Fiet and Patel, 2008). George and Bock (2011) define the BM as “the design of organizational structures to enact a commercial opportunity” (p. 99) and so they view the BM as a “core building block of the entrepreneurial enactment process” (p. 102). Yet despite the relevance of the BM to the EP, the study of the BM with the entrepreneurship literature is limited to date (Andersén et al., 2014; Foss and Saebi, 2017).

The EP has also become the subject of enquiry within the field of sustainable entrepreneurship. Accordingly, the EP has been characterised through the following steps: recognising an ecological/social problem; recognising an ecological/social opportunity; developing a double bottom line solution; developing a triple bottom line solution; funding and forming of a sustainable enterprise, and creating/entering a sustainable market (Belz and Binder, 2017). These steps are summarised in Table 1.

Alongside the EP, the entrepreneurship literature gives emphasis to the EO too. EO is a central component of entrepreneurship and a significant factor in strategy development (Smith and Jambulingam, 2018). EO is the ability to recognise opportunities and act upon them (Ahuja and Lampert, 2001) through a set of actions such as scanning and monitoring micro and macro environments with the intention of seeing new opportunities and seizing them eventually. Mintzberg (1973) introduced EO as a facilitator of idea generation and business growth especially within volatile, uncertain, complex and ambiguous environments. EO manifests itself in innovativeness, risk-taking, proactiveness, competitiveness and autonomy (Smith and Jambulingam, 2018). To seize an opportunity, the entrepreneur acquires necessary resources, makes plans and organises key activities (e.g., creating the legal entity, developing routines and organisational structures, hiring employees), and develops strategies to obtain competitive advantage and generate value (Shane, 2003). The dimensions of EO here illustrated are mostly studied at the aggregate level, i.e. it is difficult to ascertain whether they refer to a particular area of the business or to all of its activities (Andersén et al., 2014). As a result, Andersén et al. (2014) have argued in favour of deconstructing the entrepreneurship concept by studying EO from a BM perspective. Sharing their line of reasoning, we study the EO from a BM perspective within the context of circular entrepreneurship, i.e. the “processes of exploration and exploitation of opportunities in the circular economy domain” (Zucchella and Urban, 2019, p. vii), which is just about emerging in the CE literature (Veleva and Bodkin, 2018; Zamfir et al., 2017).

The characteristics of EO and EP introduced here will be used to articulate the description of *Wasted Apple*’s EO and EP in a CE context in sections four and five and to discuss our findings in section six. Next, we introduce the concepts of CE and CBMs.

2.2. Circular economy and circular business models

Many definitions of the CE have been proposed to date. Stahel

Table 1

The sustainable entrepreneurial process.

Recognising an ecological/ social problem	Recognising an ecological/ social opportunity	Developing a double bottom line solution	Developing a triple bottom line solution	Funding and forming of a sustainable enterprise	Creating/entering a sustainable market
The sustainable entrepreneurial process starts by identifying an ecological/social problem, which is encountered in the private/professional life of the entrepreneur.	A solution to an ecological/social problem could also be a source of market opportunity. Identifying this solution is the second step in the sustainable entrepreneurial process.	Once the solution is identified and the benefit to the customer becomes clear, a business idea starts developing. This is the third step in the sustainable entrepreneurial process.	In the initial stage of development, only two goals are pursued at the same time with the triple bottom line developed only at a later stage.	The funding and forming of a sustainable enterprise are the fifth step in the sustainable entrepreneurial process.	When the sustainable innovation is commercialised, the sustainable entrepreneurial process enters in its final step.

Source: Based on [Belz & Binder \(2017\)](#).

(2019), one of the most influential scholars behind CE thinking, states: “the circular industrial economy manages stocks of manufactured assets, such as infrastructure, buildings, vehicles, equipment and consumer goods, to maintain their value and utility as high as possible for as long as possible; and stocks of resources at their highest purity and value” (p. 6).

Three are the main principles through which CE thinking can be synthesised: *preserve and enhance natural capital* (i.e. decouple production processes from consumption of finite natural resources and return to nature biological materials to build natural capital); *optimise resource yields* (i.e. enhance materials, products and components rate of circulation to boost resource productivity), and *foster system effectiveness* (i.e. design out all negative environmental externalities deriving from production and consumption systems) ([EMF et al., 2015](#)). These principles are applied through subsequent reusing, remanufacturing, refurbishing, recycling and returning renewable materials safely to the natural environment to act as nutrients, restoring and building natural capital.

CE thinking and its inherent value proposition to firms, emphasise business opportunities ([Pollard et al., 2016](#)). Yet for these to be seized, new BMs or the transformation of existing ones are required ([Pieroni et al., 2019; Ranta et al., 2018](#)). Therefore, the study of the BM is crucial to understand how value can be created and captured in a CE and to build a convincing business case ([Ranta et al., 2018](#)). A BM can be defined as “the rationale of how an organization creates, delivers, and captures value” ([Osterwalder and Pigneur, 2010](#), p. 14). The BM concept is articulated into the core elements of *value proposition* (what value is offered and to whom), *value creation* (how value is created), *value exchange/delivery* (how value is exchanged/delivered) and *value capture* (how value is captured) in a coherent whole ([Richardson, 2008](#)).

The BMs literature is commercially focussed and so scholars of corporate sustainability demand a wider systems perspective that gives attention to ecological and social value creation too. As a result, the concept of the BM has entered the research agenda on corporate sustainability more recently. [Schaltegger et al. \(2016b\)](#) propose that “a business model for sustainability helps describing, analysing, managing, and communicating (i) a company’s sustainable value proposition to its customers, and all other stakeholders, (ii) how it creates and delivers this value, (iii) and how it captures economic value while maintaining or regenerating natural, social, and economic capital beyond its organisational boundaries” (p. 267).

As a means for seizing a circular advantage, CBMs have gathered the interest of corporate leaders and, consequently, businesses of different sizes and across diverse sectors are experimenting with their implementation ([Jones and Comfort, 2017; Mayer et al., 2019](#)). One of the most recent definitions, conceptualises 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)” ([Geissdoerfer et al., 2020](#), p. 12). Academically, CBMs are the subject of an increasing

number of scientific publications. Recently, studies have explored the managerial practices and factors influencing value creation in CBMs as well as design for CBMs implementation. Building on [Urbinati et al. \(2017\)](#) and [Ünal et al. \(2019b\)](#), [Ünal et al. \(2019a\)](#) propose a theoretical framework to explain circular value creation linking managerial practices with internal and external contextual factors. [Centobelli et al. \(2020\)](#) argue that the design for CBMs is dependant on a set of managerial practices that are specific to value proposition, value creation and delivery and value capture. Academic and practitioners’ studies have also developed several tools (e.g., frameworks, canvasses, archetypes, categories etc.) for assisting in the implementation of CBMs. [Lüdeke-Freund et al. \(2019\)](#) review and synthesise them, identifying a range of BM design options. They propose six CBMs patterns supporting closed-loop materials strategies: *repair and maintenance*; *reuse and redistribution*; *refurbishment and remanufacturing*; *recycling*; *cascading and repurposing*, and *organic feedstock* BM patterns. Accordingly, these BMs offer substantial advantages in terms of value proposition to the customer and value capture to the company. Particularly, customers can benefit from products lasting longer, pay per use models rather than ownership, no handling of waste products at the end of their useful life, and upgradable products. Furthermore, businesses can earn additional revenues streams (e.g., from maintenance and repair services), develop long-lasting customers’ relations, reduce materials costs (e.g., substitution of virgin materials is possible via secondary materials returning in the production process), build a better reputation and reduce materials price and supply volatility. *Cascading and repurposing*, and *organic feedstock* BMs patterns refer to the ‘biological cycle’ and they focus on retaining the value of biological materials ([Lüdeke-Freund et al., 2019](#)). For this to happen, it is necessary to recover the biological nutrients contained in used products/components and waste (*ibid.*). Nonetheless, authors are wary that these patterns are not exhaustive meaning that they do not represent the whole of the CE and that many more CBMs types may exist in practice.

Another novel typology of CBMs is developed by [Henry et al. \(2020\)](#), who identify the most common categories of CBMs in circular start-ups. Their work is of particular relevance to this study which, similarly, is based on a case study of a circular start-up. [Henry et al. \(2020\)](#) distinguish five circular start-up archetypes: *design-based* (aiming at improving resource usage efficiency); *waste-based* (aiming at extracting value from unused waste streams); *platform-based* (aiming at facilitating sharing of resources); *service-based* (aiming at offering product-service systems and thereby services rather than products) and *nature-based* (aiming at offering products that lower the input of natural resources).

Wasted Apple, fits with the *organic feedstock* BM pattern ([Lüdeke-Freund et al., 2019](#)) and the *waste-based* archetype ([Henry et al., 2020](#)). *Wasted Apple* is a Cornish, ‘born-circular’ firm whose circular ethos is grounded on diverting perfectly good apples from disposal. Using locally grown apples from orchard owners who are unable to pick or use all of their crop and that would have otherwise ended up as waste, *Wasted Apple* commercialises locally crafted and 100% natural apple juice and dry apple cider. Next, we introduce our research method and strategy.

3. Research method

This study rests upon a qualitative, single case study methodology (Stake, 1995; Yin, 2014), which is very common in the CBMs literature (e.g., Bundgaard and Huulgaard, 2019; Ünal et al., 2019a). We chose case study methodology because of the contemporary nature of the phenomenon under investigation, for the exploratory characteristic of the research and to gain an in-depth, contextual understanding (Yin, 2014). The case subject of this study was selected on the basis of a specific selection criterion since case study research calls for theoretical rather than statistical sampling (Eisenhardt and Graebner, 2007), i.e. *Wasted Apple* was chosen because it is a pertinent example to generate insights into the phenomenon of our research interest. We used a best practice, exemplary case study, to maximise the results obtainable from the research in line with current approaches in CE and CBMs research (e.g., Ünal et al., 2019a, 2019b).

Data collection relied on primary and secondary data. Primary data were collected through semi-structured interviews with the founder of *Wasted Apple* and throughout an ongoing dialogue with him established by one of the authors of this paper, over a period of eighteen months. The informant was chosen to maximise both the richness of the data and so the chances that the interview questions could be addressed (Creswell, 2012), and saturation. The first contact was made during an event organised by TEVI, an EU funded CE support initiative in Cornwall (Tevi, 2017). Further engagement with the founder and the case study was attained by participating to numerous events where the informant was amongst the presenters, using *Wasted Apple* as a case study in undergraduate and postgraduate teaching, and visiting the founder's workplace, the company premises and the farms (suppliers) various times.

At the final phase of the data collection process, two semi-structured interviews were conducted with the informant. The interviews were undertaken in April 2019, they lasted 150 min and took place at the company premises after having gathered informed consent in writing. The interviews were based on an interview protocol (available in the Appendix 1), prepared ahead of the interviews taking place and were conducted face-to-face by one of these authors. The questions were derived from the CE, BMs and entrepreneurship literature, particularly they encompassed: a) the entrepreneurial process, and b) value proposition, creation, delivery and capture including environmental and social angles. The interviews were digitally recorded and transcribed verbatim with the use of a software and the content checked through for accuracy firstly by one of these authors and then by the other author.

To mitigate the risk of biased interviews and reporting, primary data were complemented by the use of secondary data resulting from the company's website, blogs and a documentary about *Wasted Apple* on Channel 4. The triangulation of different data sources followed the steps suggested by Tellis (1997). Accordingly, each of these two authors first analysed independently the transcribed interviews and secondary data to check for inconsistency and areas requiring further refining or explanation, and then we confronted our analysis with each other to give consistency to the interpretation of the phenomenon under investigation. The accepted data were once more triangulated. The collected data were analysed qualitatively using narrative analysis (Langley, 1999) and thereby avoiding data fragmentation (e.g., developing categories, codes) in order to preserve the integrity of the data.

Our approach to theory building from case-based research resonates with the case view as an example of 'contextualised explanation' (Welch et al., 2011), in which causal and context-related explanations result and theory development is neither deductive nor inductive but rather abductive (*ibid.*). Abduction, as opposed to deduction and induction which are based on a unidirectional line of reasoning (either from theory to data or from data to theory respectively), relies on an iterative, circular line of reasoning between theory and data to produce theory that is context sensitive (Polsa, 2013). This process, which is also known as "systematic combining" (Duboise and Gadde, 2002, p. 555), rests on the

conceptual framework developed in section two (the characteristics of the EP and EO, the concept of the BM, the principles of the CE) and on primary and secondary data to describe EP and EO from a CE and BM perspective.

The findings that we illustrate next are based on our analysis and interpretation and thereby, they fall exclusively under our responsibility and they do not represent the position of the company.

4. Wasted Apple: the entrepreneurial process

The EP of WA is described following Belz and Binder's (2017) characterisation of the sustainable EP introduced in section two.

4.1. Recognising an ecological/social problem and turning into an opportunity

Mark is the founder and owner of *Wasted Apple* (WA). He is a fulltime employee as an IT specialist, a husband and a father of five. He lives in Cornwall where WA was born. He is a solo entrepreneur with no previous entrepreneurial experience and the first entrepreneur in his family.

Mark's entrepreneurial journey started with an observation. He saw a neighbour mowing their apples into the ground which seemed to be an odd thing to do for Mark. Mark asked to pick the neighbour's apples which was perceived as a great favour by the neighbour.

The original motivation [for starting this business] came from really a conversation with my neighbour. When he happened to be mowing the lawn in his orchard and there were apples all over the ground and basically he was mowing them all into the ground, and I said to him why are you mowing apples into the ground? It seemed to be an odd thing to do and he said: look, I've got about 20 trees in his orchard. He said we eat a lot of apples, we put a lot of apples in the freezer, and we give a lot of our apples away. We can't use them all. So to prevent the wasps causing problems around the trees he said I just mow them all into the ground. So I said to him: could I have them? I didn't like seeing that waste. This seemed like nature had produced a great product. You were then just mowing it into the ground. And to me that felt sort of wrong. So I said to him you know, could I have them? He said "absolutely". You know come and take all that you want because you're saving me a job basically (...). All I do is use the apples and their juice. I don't add any water to it. I don't take anything away from it. It's as natural a product as you can get. And it's sort of it works in that circular economy type way where you're taking something very local that would go to waste and you're turning into something which has taste (Interview excerpt).

Mark's entrepreneurial spirit was evident in him recognising an opportunity and immediately acting upon it (Ahuja and Lampert, 2001). He emptied his garage for a space for the press and built it manually in there. He has learnt cider making through searching on internet, reading books, attending forums and local events and engaging with the existing local cider businesses. One of Mark's outstanding entrepreneurial characteristics is his willingness to take calculated risks.

"Whether the apples that I get are good enough to do (cider) I don't really know. I have to experiment. And that's really what part of my motivation (...) I do love the experimental piece where you can try something and you can develop something, and sometimes it works and sometimes it won't. But that's what's exciting, isn't it? And when it does work really well then you get the reward" (Interview excerpt).

4.2. Developing triple bottom line solutions

Mark does not describe himself as an entrepreneur and claims that

there are social and environmental values, not commercial, at the heart of his entrepreneurial venture. This explains his determination to pursue WA's business although he has not generated any profit from it yet. Nonetheless, he anticipates that the business will improve its capacity to create economic value alongside social and environmental value eventually.

4.3. Funding and creating the sustainable enterprise

Mark started his venture from scratch and had to overcome the barrier of lack of financial resources needed to launch and support his business. Taking a DIY approach to build the most traditional method of cider making and leveraging on his own and his family human capital, he has managed to overcome the shortage of financial capital. Through passion and commitment, Mark has successfully brought to the market a range of different products: single variety ciders, apple juice, cider syrups, mulling syrups, vinegar, apple jelly and apple chutney. As stated in [Section 2](#), the BM is a key building block in the enactment of the EP. The next section analyses WA's EO from a BM perspective and so via describing the component of the BM, this analysis will cast further light on WA's EP too.

5. Wasted Apple: the entrepreneurial orientation

Following Andersén et al.'s ([2014](#)) approach in deconstructing EO, we describe WA's EO from a BM perspective and thereby in terms of value proposition, value creation and delivery and value capture.

5.1. Entrepreneurial value proposition

A BM value proposition refers to the offering to the customers and to the customers' target. Being entrepreneurial in the value proposition means to be innovative in terms of the offer to the customers but also to redefine existing customers/markets or identify new customers/ markets ([Andersén et al., 2014](#)). WA is offering a 100% natural, dry apple cider, locally crafted using locally grown apples that would have otherwise ended up as waste. The main target customers are traditional cider drinkers but also younger drinkers, who particularly enjoy the fruity cider syrups that the company is producing and that can be mixed up into the cider to obtain a much sweeter drink. The entrepreneurial characteristics of its value proposition are emphasised by the following quotes extracted from the interviews with the company's founder:

I have taken something that would have just gone into the ground and rot and I've turned it into a product that people are actually really enjoying (...). I guess the main thing that I think I'm offering is something which is truly Cornish. It's truly a craft. And it is as natural as you can possibly get (...). I produce a product where I could take you certainly to the orchard if not the tree that the apples came from there in that bottle. Now for me that's a really powerful proposition if you want to support your local economy and you want to know where your food comes from (...) I use 100 percent juice. I don't use anything else. The process is kept as natural as possible. So, I don't carbonate it, I don't pasteurize it. I don't filter it. It's all kept as natural as possible (Interview excerpt).

Furthermore, Mark has already actively started scaling out the business through expanding its value proposition to the customers: mulling syrup, vinegar, apple jelly, apple chutney and cider syrups are now produced. Different fruits such as strawberry, rhubarb and blackberry are used to make syrups to be mixed with the dry cider. In this way, the innovativeness of the value proposition expands beyond the product itself to include customer experience: the consumer can create a unique taste through mixing cider with syrups. The rule never changes: he uses fruits that would otherwise go to waste.

5.2. Entrepreneurial value creation and delivery

The value creation and delivery component of a BM includes key resources, partnerships and distribution channels. Additionally, as the investigated BM is a CBM, value creation from an environmental and social perspective is also evidenced. The key resources going within WA's production process have been sourced and built from scratch by the company's founder. Apples are from Cornish orchards, both from orchard owners who do not know what to do with their apples or cannot do anything with them, and from farmers or small holders who also have holiday properties with their orchards and request a bespoke cider product for them. The product is distributed locally within a narrow radius and sold directly by the company or by post. Customers can also pick up the cider at the company location.

Partnerships with other cider makers within Cornwall are under development to encourage the growth of cider in Cornwall. The entire manufacturing process has a very low environmental impact. CO₂ emissions and food miles are kept to a minimum. This is achieved by doing almost every step of the production process manually and on-site (e.g., washing, pressing, milling, bottling). WA also uses cardboard made from 70% recycled materials to store bottles and reusable branded tote bags to sell combination packs of ciders, which reduces the need for single use plastic bags. At the moment he cannot reuse the bottles because he cannot sterilise them sufficiently. Efforts are in place to moderate the demand for mechanical power and the only waste that is produced is apple pulp, which is currently going to composting. Nonetheless, partnership with research institutions are in place to find an alternative use for this by-product and Mark is really willing to explore opportunities for further reducing the environmental footprint of its production/product.

There are a few things that I want to get better at. One is the water that's used for the press that comes from the mains (...). What I want to do is find a way of recycling that water so that each time the press runs it's basically using the same water recirculated round rather than taking fresh water from the mains (Interview excerpt).

He has been working on adopting a new customer channel structure to reduce the packaging waste which has not been used in the cider industry yet.

The other area that I'm looking at which I'm literally just exploring now - I'm actually getting quite a lot of growing interest in it - is whether I can supply cider in bigger containers for zero waste shops and refill shops, where you take your own container and you fill it with whatever it might be. And what I want to do is work with them to put cider in that shop so that I can actually take it from my big tanks, I can take it to their premises in a tank fill up, and then people can pour it into their own containers and then that is zero waste (Interview excerpt).

WA's supply chain is rather simple. Suppliers are amongst the customer's base. For every 25–30 kg of donated apples, suppliers receive two bottles of cider up to 36 bottles. Suppliers will be also given a discount card allowing the purchase of any other company's company product at a discounted price throughout the year. There is no formal or legal contract between Mark and his suppliers/customers. Who will collect apples or how apples or cider bottles will be delivered or where to open a stall, are determined through instant and casual communications in an effectual manner. Since Mark has not experienced any scarcity of the key ingredient (i.e. apples) for its product, he does not see this "informality" as a threat but as a part of the community spirit – co-creating things together for a good purpose. Firms can be entrepreneurial in the resources and capabilities they develop, which in addition to risk taking, innovativeness and proactivity requires also perseverance ([Andersén et al., 2014](#)), and this is certainly the case of the company under investigation.

As a result of its circular entrepreneurial endeavour, there are other forms of environmental and social value that the company is creating. These range from natural capital preservation and benefits to the local community of suppliers (e.g., preventing wasps causing problems to orchard trees), to the building of local, social capital (WA benefits from a community of volunteers that help pick, press and produce our hand-crafted cider) and to inspiring the local community to take initiative to reduce wastefulness.

There are bee communities who really encourage the sustainability of bees and they love what I'm doing because in fact I'm preserving a habitat for bees. So, what an orchard that might have gone to ruin or actually be cut down (Interview excerpt).

What I found is that when I'm giving people some cider or apple juice for their apples, they really start caring about their apple trees. Suddenly they're actually: hey I've got something which is really great. It is not only do I enjoy the blossom in the springtime but I enjoy some cider later on that's made from my apples. This is fantastic. So, they then want to look after the trees and they say: look how can I make sure they're pruned properly and I can take care of the grass and everything that's around them and what should I do? (Interview excerpt).

People who give me their apples are real supporters as well because they love what's happening, so they really encourage it and they ask other people and say: have you got some apples that you might want to give? if they see them going to waste (Interview excerpt).

We do have people who really enjoy helping us with bottling and other things like that. It's just something that's completely different that they enjoy doing. I mean it's amazing to me how much people enjoy. And it's a very traditional thing of course to go into an orchard and go picking apples and to know that's been done for centuries, so to bring some of that back (Interview excerpt).

5.3. Entrepreneurial value capture

The value capture dimension of the BM refers to its costs and revenues streams. WA does not incur in any cost for its apples. They are just donated and suppliers get some juice and cider in return. It can be then argued that Mark's entrepreneurial endeavour by turning a problem into a resource, has secured access to almost zero cost raw materials for the production process. Furthermore, he does not have any labour costs because he either gets volunteers, family members, friends or orchard owners for help. The biggest costs are represented by the bottles and the labels that go on the bottles at the moment.

Turning to revenues, product pricing can be a highly entrepreneurial activity (Andersén et al., 2014). Entrepreneurial pricing is defined as "pricing that is market-based, risk-assumptive, proactive, and flexible" (Schindelhutte and Morris, 2001, p. 43) and the pricing of WA cider responds to these characteristics. In fact, WA cider price is similar to other manufacturers but not quite as cheap. It is a premium price reflecting the unique selling points of the product upon which the founder has been very successful in building and narrating a story.

There's a little premium on buying something that is very hand-crafted and it's very local (...). So, I've tried to build on the merits of the fact that what every batch of cider I produce won't be exactly the same because I get apples from all different places whereas the big manufacturers they will get their main suppliers who give them all the same apples and then they blend all together as one big thing, so it's always exactly the same. I've not done that, I've tried to embrace the variability of the product and actually people like that and they buy into that as well. It's vastly different when you taste one batch to another (...). So, it's a premium product. And actually, they sell pretty well (Interview excerpt).

6. Discussion

WA's case confirms current understanding of entrepreneurship from a CE perspective (as defined in Zucchella and Urban, 2019) since via espousing CE principles and characteristics (e.g., designing out waste and other negative environmental externalities, optimising resource yields, preserving and enhancing natural capital), new customers/markets have been identified turning an 'eureka' moment into a growing circular enterprise. To advance current entrepreneurship literature wherein EO has rarely been studied from a BM perspective, this article has dug further into the concept of circular entrepreneurship to uncover the characteristics of EO in the context of the CE.

Entrepreneurially orientated firms exhibit characteristics like innovativeness, risk taking, and proactiveness (Andersén et al., 2014). Entrepreneurial value proposition, value creation and delivery and value capture characterise WA's CBM. Elements of innovativeness, risk taking, proactiveness but also perseverance are evident in the offering to the customers, development of resources, capabilities and partnership and pricing mechanisms. Furthermore, we add that EO from a CE perspective is qualified by *embeddedness*: being entrepreneurial in the CE means to create value for the broader system an organisation is part of. Table 2 summarises the EO of WA from a BM perspective.

In addition to uncovering the EO of a circular start-up from a BM

Table 2
Wasted Apple's entrepreneurial orientation from a business model perspective.

Entrepreneurial value proposition	Entrepreneurial value creation and delivery	Entrepreneurial value capture
An entrepreneurial value proposition is innovative in the offering to the customers as well as in redefining existing customers/markets or identifying new customers/ markets (Andersén et al., 2014).	Risk taking, innovativeness, proactivity and perseverance are required to be entrepreneurial in the development of resources and capabilities (Andersén et al., 2014).	Entrepreneurial pricing is defined as "pricing that is market-based, risk-assumptive, proactive, and flexible" (Schindelhutte and Morris, 2001, p. 43).
Customers' offering: <ul style="list-style-type: none">• 100% natural, dry apple cider, locally crafted using locally grown apples that would have otherwise ended up as waste;• mulling syrup, vinegar, apple jelly, apple chutney. Target customers: <ul style="list-style-type: none">• traditional cider drinkers;• younger drinkers, who particularly enjoy the fruity cider syrups that the company is producing with fruits like strawberry, rhubarb and blackberry and that can be mixed up into the cider to obtain a much sweeter drink. In this way, the innovativeness of the value proposition expands beyond the product itself to include customer experience: the consumer can create a unique taste through mixing cider with syrups.	Risk taking, innovativeness, proactivity and perseverance: <ul style="list-style-type: none">• the entrepreneur had no previous experience in starting/running a business;• the business started because of an observation and intuition;• the entrepreneur built himself the necessary technical equipment;• the entrepreneur developed his own network of suppliers;• the entrepreneur has challenged himself continuously by taking up new tasks (e.g., building the press for producing the cider).	WA cider price is a premium price reflecting the unique selling points of the product.

Source: Authors' own elaboration.

perspective, this article has also investigated circular entrepreneurship from the EP perspective. The EP in this case has started with opportunity identification (Shane and Venkataraman, 2000) rather than having entrepreneurial intentions or motivations developed prior to the business setup. The initial motivation, namely to stop a natural resource being wasted, evolves into a conscious effort to create value for the local community not just with the final product but throughout the whole entrepreneurial process.

WA's initiative also possesses a number of distinctive characteristics of community entrepreneurship. The whole process moves away from an enterprising individual towards a collective event that highlights social commitment, non-profit goals, and benefits for the wider community besides the entrepreneur's calculated, self-interested individual and monetary goals (Dupuis and de Bruin, 2003). From the conventional entrepreneurship perspective, the dominance of ecological and social values and a lack of commercial value creation, is fundamentally against the market logics. The embeddedness of WA within multiple institutional logics, namely, ecological, social and commercial logics, at the same time, potentially leads to tensions between different forms of value creation, a common challenge identified in the sustainable entrepreneurship literature (Villa Todeschini et al., 2017). Nonetheless, logics are not given equal weight since the ecological logic is more salient than others. This robust ranking of the logics enables the entrepreneur to prioritise things in BM design and innovation in a coherent and consistent way and so it facilitates managing hybrid tensions. Furthermore, generating social value as a residual of ecological value is at the heart of the embeddedness, of gaining social legitimacy through a collective agreement between the parties on the foundation of mutual benefits.

However, Mark's prioritisation of ecological and social value creation is also a challenge for scaling up the business since in the pursuit of business growth and profitability, it might be difficult to retain the core sustainability values. And yet as long as the BM innovation is predominantly prescribed by the ecological logic, developing various configurations within the BM blocks is still achievable. For one, when the customer segment changes from a local farmer to a commercial customer, the revenue stream is re-designed to generate commercial value prescribed by the market logic while social value creation through offering a 'natural' and 'local' cider experience is still delivered. Apparently, new configurations of the BM through re-arrangements of available resources, networks and stakeholders' patterns are practiced successfully in WA. This flexibility is possible due to the micro scale of the enterprise and the foundation of the business resting on the creation of social and ecological value. Mark is determined to avoid a mission-drift, where the economic value typically becomes dominant over social and environmental value (Ebrahim et al., 2014).

Another challenge, product variability, is due to the nature of the raw materials (apples). Apples come from different orchards owners based in Cornwall and therefore, they are not of a single variety. This is then reflected in the variability of the final product looking and tasting different depending on the variety of apple that has gone in the production process. Whilst this reflects the uniqueness of the product and its truly natural blend, it also requires a great effort from the entrepreneur to communicate the message to the customers who may perceive the variability as a defect. Furthermore, informal contracts and ad-hoc arrangements with suppliers are potential sources of supply volatility posing risks for the viability of the business in the long-term. Nonetheless, Mark has not experienced any scarcity of the key ingredient (i.e. apples) for its product. Therefore, he does not see this "informality" as a threat for its business but as a part of the community spirit, i.e., co-creating things together for a good purpose.

Our research findings confirm results in extant studies on circular start-ups. In line with Henry et al. (2020) we find that our example of circular entrepreneurship overlaps with environmental and social entrepreneurship to a certain extent since environmental and social value is created alongside the pursuit of economic value. Additionally,

whilst WA's EP mostly resemble Belz & Binder's (2017) sustainable EP, our results also depart from the latter insofar as aiming for ecological and social value in WA is central to logic of value creation of its CBM. Table 3 summarises WA's EP.

7. Conclusion

The CE is amongst the major entrepreneurial approaches that can address the quest for more inclusive forms of value creation. Yet a gap remains between the theory and practice of environmentally and socially sustainable entrepreneurial endeavours (Filser et al., 2019; Villa Todeschini et al., 2017), i.e. how this is achieved in practice through innovative BMs is rarely investigated (Gregori et al., 2019). In response, this article has examined the EP and the EO (from a BM perspective) of WA, a 'born-circular', Cornish firm, which, through entrepreneurial creativity grounded in the desire to turn waste into a resource, has conceived a value proposition leading to an innovative and growing business.

Beyond its immediate contributions, the findings of our article are of further academic significance. Most of the empirical studies on sustainable entrepreneurship and CE are based on large corporations (Ünal et al., 2019a; Zamfir et al., 2017). Additionally, the CBMs literature tends to be 'static' in nature, focussing on the forms these BMs can take (Frishammar and Parida, 2019) but revealing little in terms of the processes behind their implementation, let alone their associated entrepreneurial activities. By contrast, this research concentrates on a small company and takes a dynamic perspective. Our study is also of practical relevance since it shows the process leading to the emergence of a CBM and the challenges (mission drift, product variability and supply volatility due to informal contracts and ad-hoc arrangements with suppliers) that are associated with scaling up the business.

We are aware that there are some limitations in our study. For one, this research is based on a single case, which limits the possibility for generalising our results. Nonetheless, this enabled us to attain a rich understanding of the case subject of investigation, which in turn enhanced the relevance of our result. Moreover, we studied a 'born-circular' firm rather than an established corporation making a transition to a CBM. This may represent a future line of enquiry for scholars in the entrepreneurship, BMs and CE literature. How would the EP and EO of incumbent organisations moving towards circularity differ from those highlighted in this study? Moreover, other scholars may build on the characteristics of the EO in a CE we have identified to add further elements to them. Additionally, the question arising here for future studies is whether what makes the BM of WA unique and circular is also an impediment towards its viability, scalability and sustainability. When the value proposition transforms dramatically, does the entrepreneur have to make compromises in relation to his environmental and social mission? If that is the case, how will this affect the embeddedness of WA? Also, we would like to encourage entrepreneurship and CE scholars to focus on CBM transformation and configuration from the perspective of institutional logics (Friedland and Alford, 1991). Accordingly, forthcoming studies may explore how entrepreneurs create multiple forms of value when embedded in several institutional logics and their related values and beliefs, which is a subject whose investigation is welcomed (Stubbs, 2017).

CRediT authorship contribution statement

Ufuk Alpsahin Cullen: Methodology, Investigation, Resources, Validation, Data curation, Writing - original draft, Formal analysis, Project administration. **Roberta De Angelis:** Conceptualization, Formal analysis, Writing - original draft, Project administration, Methodology, Validation, Investigation.

Table 3

Wasted Apple's entrepreneurial process and associated challenges.

Recognising an ecological/ social problem	Recognising an ecological/ social opportunity	Developing a double bottom line solution	Developing a triple bottom line solution	Funding and forming of a sustainable enterprise	Creating/ entering a sustainable market
Edible apples could end up as waste. Variability of raw materials and supply volatility are potential sources of concern for the scaling-up of the business.	Apples are used as key ingredients for a range of products including juices, ciders, vinegar, syrups, jelly and chutney.	Ecological and social value are at the heart of doing business in the start-up phase.	Ecological and social value are still at the heart of doing business. Yet the outlook for generating economic value is improving. Mission drift could be a potential source of tension in the process of scaling up the business	Personal and family resources (financial and human) are used to support the business. Work-life balance is a source of concern for the business growth.	A range of product is brought to the market.

Source: Based on research data and Belz & Binder's (2017) framework.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix I

Interviewee's questionnaire

- Q 1 What was your motivation to set up this business?
 Q 2 Do you think that you have created a wider impact with your entrepreneurial attempts?
 Q 3 Did you start your business as a solo entrepreneur?
 Q 4 How did you identify the market gap?
 Q 5 Can you please briefly explain the structure of your supply chain again? So where does it start and where does it end?
 Q 6 Who are your customers?
 Q 7 Can you please describe your manufacturing process and what kind of resources do you use throughout the process of manufacturing?
 Q 8 Does the manufacturing process produce any waste?
 Q 9 And are you looking for ways to reduce the waste?
 Q 10 What is the environmental impact of the manufacturing process?
 Q 11 How is the final product distributed?
 Q 12 What are the main sources of costs related to the manufacturing and commercialisation of the product?
 Q 13 How is the price in the market compared to similar products?
 Q 14 Can you charge a premium price because of the features of your product?
 Q 15 Do not you charge anything from your suppliers who bring you apples and take cider back?
 Q 16 What is your marketing strategy if there is any?
 Q 17 Wasted Apple is a family business. If you need to recruit external (non-relatives) professionals including as business partners, on what basis will you select them? Is there any recruitment strategy in your mind?
 Q 18 Where do you see your business in five years and ten years' time?
 Q 19 What were the main obstacles at the start-up stage of Wasted Apple?
 Q 20 What kind of factors you perceive as impediments towards growing your business?
 Q 21 What keeps you motivated towards this business?
 Q 22 Do you see yourself as an entrepreneur?
 Q 23 You said that some local organisations helped you throughout. How did you engage with those organisations?
 Q 24 How are you feeling about growing your business? Are you prepared for this mentally?
 Q 25 What should you do and what do you need to grow your business?
 Q 26 Have you done any market research previously?

- Q 27 Before Wasted Apple, did you have any entrepreneurial experience? Is this your first entrepreneurial experience?
 Q 28 Did you have any inspirational role models before you started this business?
 Q 29 Do you think you need a role model now?
 Q 30 What kind of business owners or entrepreneurs are you looking for to engage with?
 Q 31 Are you a part of Cornwall Chamber of Commerce?
 Q 32 Do you mind if I reach you again?

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