



**Corporate Social Responsibility as a Catalyst of Circular Economy? A Case Study Perspective in Agri-food**

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# Corporate Social Responsibility as a Catalyst of Circular Economy? A Case Study Perspective in Agri-food

## Abstract

**Purpose** – This research aims to analyze how, under the stakeholder theory, Corporate Social Responsibility (CSR) might favor the emergence of Circular Economy (CE) in the Agri-food sector, which is a relevant context as it is technologically dynamic and requires paying attention to all the stakeholders.

**Design/methodology/approach** – It has been adopted an exploratory, qualitative research design to study the phenomenon in detail as it facilitates the understanding of complex phenomena such those under investigation, and helps enrich existing theory with new insights from real-world cases to add theoretical generalizations to the existing body of research in the field.

**Findings** – The results of the study highlight that companies adopting CSR models are oriented towards circularity.

**Practical implications** – This research provides useful indications to managers and policy makers as to how to favor the two approaches and benefit all the stakeholders.

**Originality/value** – While there is wide scholarly and managerial interest towards CSR and CE, previous research has mainly analyzed CE and CSR as two independent phenomena. Therefore, there is a lack of understanding about how the two areas are linked. Following previous studies that have started to theoretically argue an interconnection between CSR and CE, in this research it has been empirically investigate, and further explore theoretically, whether CSR can implicitly encourage the emergence of CE approaches.

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3 **Keywords:** Corporate social responsibility, Circular economy, Stakeholder theory, Agri-food,  
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5 Environmental innovation.  
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10 **Paper type:** Research paper.  
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## 1. Introduction

The Ellen MacArthur Foundation, a leading organization aiming to spread the adoption of the Circular Economy (CE), defines the CE as “an umbrella term for an economy designed to regenerate itself in which waste is minimized” (Ellen-MacArthur Foundation, 2013). This approach requires a paradigm shift that can prioritize reducing waste and pollution, favour resource efficiency and encourage repairs rather than replacement mechanisms (Kirchherr *et al.*, 2017; Cainelli *et al.*, 2020).

The CE can help attain the Sustainable Development Goals (SDGs) set by the United Nations. Indeed, CE can be traced back to the SDG 12 “Responsible Consumption and Production,” one of the 17 SDGs included in the 2030 Agenda, the action program for the planet adopted in September 2015 by the United Nations. SDG 12 seeks to ensure sustainable production and consumption models for a better world. Thus, CE may aid in tackling grand challenges, i.e., pressing environmental and social problems that afflict society (Berrone *et al.*, 2013; Cappa *et al.*, 2020; Centobelli *et al.*, 2020; Sakshi *et al.*, 2020), by minimizing waste and increasing reuse and recycle of materials benefiting the environment and society on the one hand (Pomponi and Moncaster, 2017; Fehrer and Wieland, 2021) and by improving operations and production benefiting the economic performance on the other (Parida *et al.*, 2019; Ranta *et al.*, 2018a). The objective is to innovate the relationship between the organizations and the surrounding environment by implementing a closed loop of regeneration and restoration (Fernandez de Arroyabe *et al.*, 2021; Barreiro-Gen and Lozano, 2020). The CE model is also a lever to create new jobs for developing efficient systems able to postpone the end of life of the products themselves (Heyes *et al.*, 2018; Patwa *et al.*, 2021). Therefore, CE aims to nurture sustainable development satisfying the needs of all the stakeholders involved (Rainville, 2021; Burger *et al.*, 2019; Marrucci *et al.*, 2021). In this respect, knowledge management, i.e. the effective management of intellectual resources that support the creation, transfer and application of knowledge within organizations, is becoming crucial for

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2  
3 understanding CE and spread its diffusion (Grover and Davenport, 2001; Ghisellini *et al.*,  
4 2016). Indeed, a close knowledge-related collaboration with all the stakeholders can ease the  
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6 emergence of CE (Zucchella and Previtoli, 2019; Govindan and Hasanagic, 2018; Zhang *et*  
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8 *al.*, 2021; Gomes *et al.*, 2021; Vendrell-Herrero, 2021). In addition to what done and known  
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10 so far, there is a ferment around what can be a further catalyst of CE (Seles *et al.*, 2022;  
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12 Ciliberto *et al.*, 2021).

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17 Businesses have increasingly been committing to another sustainability-oriented managerial  
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19 strategy, i.e. Corporate Social Responsibility (CSR). CSR is the strategic orientation of an  
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21 organization to implement socially and environmentally responsible actions while still  
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23 pursuing economic goals (Franco *et al.*, 2020; Russo and Perrini, 2010; Ghasemzadeh *et al.*,  
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25 2021; Ltifi and Hichri, 2022), aiming to create value for all the stakeholders (Radu and  
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27 Smaili, 2021). Indeed, customers, suppliers, employees and policymakers increasingly  
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29 demand firms adapt their business strategies to jointly enhance social, environmental and  
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31 economic performance (Cassar and Meier, 2018; Maon *et al.*, 2021). Also CSR is a  
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33 knowledge intensive phenomenon, and companies are interested in how to accumulate, create  
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35 and share knowledge to effectively implement CSR throughout the organization (Gangi *et al.*,  
36  
37 2019). While there is wide scholarly and managerial interest towards CSR and CE, previous  
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39 research has mainly analyzed CE (Blomsma, 2018; Geissdoerfer *et al.*, 2017; Ghisellini *et al.*,  
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41 2016; Korhonen *et al.*, 2018; Lewandowski, 2016; MacArthur, 2013; Manninen *et al.*, 2018;  
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43 Morseletto, 2020; Ranta *et al.*, 2018b; Saidani *et al.* 2019; Tukker 2015) and CSR (Barrena-  
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45 Martínez *et al.* 2015; Gangi *et al.* 2018; Perrini *et al.*, 2007; Santos, 2011; Vázquez-Burguete  
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47 *et al.*, 2017) as two independent phenomena. Therefore, there is a lack of understanding about  
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49 how the two areas are linked. Since both are aimed at enhancing all three pillars of  
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51 sustainability, i.e., economic, social and environmental (Cappa *et al.*, 2020; Hansmann *et al.*,  
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53 2012), we argue that they can be mutually helpful.  
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3 In greater detail, following previous studies that have started to theoretically argue an  
4 interconnection between CSR and CE (Daú *et al.*, 2019; Esken *et al.*, 2018; Leandro and  
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In greater detail, following previous studies that have started to theoretically argue an interconnection between CSR and CE (Daú *et al.*, 2019; Esken *et al.*, 2018; Leandro and Paixao, 2018; Velenturf *et al.*, 2019), in this research we empirically investigate, and further explore theoretically, whether CSR can implicitly encourage the emergence of CE approaches. In particular, the research question we addressed in this research is the following: *How does CSR favour the emergence of CE?* To answer this query, in this study we have analysed eight case studies in the Agri-food sector, which is a relevant context where to conduct our research as it is technologically dynamic and requires paying attention to the stakeholders. Therefore, it represents a fertile ground where to study the joint application of CSR, which has been evidenced to be increasingly relevant in food related matters (Kong *et al.*, 2019; Kong, 2012), and CE, which is emerging due to the growing technological advancements (Pieroni *et al.*, 2019; Berrone *et al.*, 2013; Cainelli *et al.*, 2020) and is attracting growing attention in the food sector (Halloran *et al.*, 2014; Mylona *et al.*, 2018; De Schutter *et al.*, 2020).

The paper has implications for theory, practice and policymaking. First, it enriches the scientific knowledge of CSR and CE phenomena, and contributes to the understanding of their interconnections. Second, it underlines that stakeholder theory (Freeman and Evan, 1990) is a theoretical lens that can be effectively used to understand how CSR and CE are correlated. Moreover, we have empirically shown how CSR can favour the transition towards CE, although in an unstructured way. In addition, this research also informs managers about the fact that if they undertake certain CSR activities, they are also moving towards CE. More broadly, the outcomes are also of interest to policy makers, who can promote the emergence of CSR by evidencing that it also favors the establishment of CE. In such a way, it possible to push thus companies towards the joint implementation of CSR and CE, benefiting all the stakeholders.

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3 The manuscript is structured as follows: Section 2 reviews the literature on CE and CSR.  
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5 Section 3 discusses the relevance of the Agri-food sector and describes the methodology  
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7 adopted and the structure of the data collection phase. Section 4 provides findings. Section 5  
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9 discusses results and implications for theory, practice and policymaking, while Section 6  
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11 concludes the analysis of the multiple case studies, highlighting the limitations of the work  
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13 and future research directions.  
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## 18 **2. Background**

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20 In the 1970s a new model that was in opposition to classical linear systems and that was  
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22 suitable for the improvement of society and human wellbeing started being developed. Song  
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24 (1972) systematized parameters into a mathematical model that could give life to a new  
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26 science that would take into account the scarcity of resources and the population and the  
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28 consequent environmental degradation. However, it is with the birth of the Ellen MacArthur  
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30 Foundation in 1976 that the term CE becomes concrete. The Foundation aims to promote the  
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32 various principles of CE by incorporating several schools of thought about it into a single  
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34 integrated concept (Ellen MacArthur Foundation, 2015, Linstead *et al.*, 2014). In 2020 the  
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36 European Commission (EU) presented a package regarding CE called “The Missing Link: A  
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38 European Action Plan for the CE” that considers CE as an opportunity for growth for all  
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40 stakeholders and for the implementation of specific objectives based on the incentive policies  
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42 of this model (European Commission, 2015; FEEM, 2020; WHO - Regional Committee for  
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44 Europe, 2014).  
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50 As governments and businesses increase their attention towards environmental innovations  
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52 (Dias Angelo *et al.*, 2012; Marrucci *et al.*, 2021), i.e., innovative solutions able to reduce  
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54 intensive consumption of resources as well as sustain economic growth (Geissdoerfer *et al.*,  
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56 2018; Ghisellini *et al.*, 2016), CE is becoming central as it is able to bring economic, social  
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58 and environmental benefits (Suchek *et al.*, 2021; Barreiro-Gen and Lozano, 2020). It has been  
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3 argued that the turning point of change is to be found in design and not in economic activity  
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5 itself, based on the growth of “cradle to cradle” (Lawrence, 2013), thus abandoning the old  
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7 “cradle to grave” system (Song *et al.*, 2018). Indeed, CE may aid in addressing grand  
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9 challenges and benefit sustainable development, by creating competitive advantage through  
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11 innovative and sustainable business models (Kristoffersen *et al.*, 2020; Fernandez de  
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13 Arroyabe *et al.*, 2021; Ferasso *et al.*, 2021). The advantages of CE include the promotion of  
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15 growth by ensuring competitiveness through opportunities for social cohesion and integration  
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17 as well as paying attention to the environment (Loiseau *et al.*, 2016; Pan *et al.*, 2018;  
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19 Postolache and Troaca, 2018; Urbinati *et al.*, 2017). The transition towards CE affects and  
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21 involves all the actors of society, from producers to institutions, down to the consumer (Ciulli  
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23 and Kolk, 2019; D’Amato *et al.*, 2017; Geissinger *et al.*, 2019; Hanley and Semrau, 2022).

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26 As can be gleaned from the above-mentioned benefits, the CE model can be analyzed through  
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28 the “stakeholder theory” perspective (Govindan and Hasanagic, 2018), because all the  
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30 stakeholders, e.g. government, communities, trade unions, consumers, employees, suppliers,  
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32 and citizens, impact CE and are also affected by it (Hussainey and Salama, 2010).

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35 Another stakeholders-oriented approach adopted by companies is CSR (Salvioni and Almicci,  
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37 2020). Already in the 1960s, Frederick (1960) had underlined that it was necessary to  
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39 reallocate managers with responsibility to focus their attention on society as well that of their  
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41 company. In the same decade, McGuire (1969) highlighted how companies have, in addition  
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43 to obligations in the social and economic spheres, extended responsibilities that go well  
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45 beyond those dictated by regulatory obligations, which require incisive actions and direction  
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47 on social policies. Friedman (2017) emphasized how companies were mainly focused on  
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49 maximizing profits but instead there is also need also to benefit shareholders. CSR spawned  
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51 from these considerations, and the most comprehensive definition has been provided by  
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53 Carroll (1991): “*Corporate social responsibility encompasses the economic, legal, ethical,*  
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3 *and discretionary (philanthropic) expectations that society has of organizations at a given*  
4 *point in time*". The interest towards CSR has continued to grow through the years. The  
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6 European Commission (2001), in the "*Green Paper Promoting a European Framework for*  
7 *Corporate Social Responsibility*", highlighted that CSR draws attention to the environment  
8 and social issues through the activities companies carry out, reaching all the stakeholders  
9 involved. Werther and Chandler (2005) discussed the importance of CSR as a vehicle to  
10 enhance the corporate brand. Porter and Kramer (2006) affirmed how CSR can be a means to  
11 adapt their corporate strategies to the needs of the society. Indeed, also Heslin and Ochoa  
12 (2008) underlined how CSR, in addition to creating of social value, can positively affect all  
13 the stakeholders involved. Moreover, CSR fosters relationships between a company and its  
14 employees through specific initiatives aimed at their safety and training, including targeted  
15 welfare and benefit policies (Steurer, 2010). From an environmental point of view, many  
16 benefits range from low environmental impact production, to the adoption of certifications, to  
17 supplier traceability for greater transparency and traceability as well as innovative plant  
18 technologies (Baumgartner, 2014; Lucchini and Moisello, 2017). From a financial  
19 perspective, companies with high levels of CSR have better performance (Franco *et al.*, 2020;  
20 Gangi *et al.*, 2019). Therefore, CSR allows companies to pursue activities that bring about  
21 simultaneously social, environmental and economic benefits (Cappa *et al.*, 2020; Lubin and  
22 Esty, 2012; Russo and Perrini, 2010; Ltfi and Hichri, 2022). For these reasons, also in the  
23 case of CSR previous research has extensively grounded their study on stakeholder theory  
24 (Dmytriyev *et al.*, 2021; Franco *et al.*, 2020; Waheed and Zhang, 2020; Freeman and  
25 Dmytriyev, 2017; Theodoulidis *et al.*, 2017; Cordeiro and Tewari, 2015; Russo and Perrini,  
26 2010; Radu and Smaili, 2021).

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56 Considering the common focus on stakeholders and sustainable development objectives, we  
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58 argue that CSR and CE approaches could be mutually beneficial. We contend that CSR,  
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3 which is a broader and more widespread self-regulatory model, can favour the emergence of  
4 principles and models of the recent CE phenomenon. While such relation has been theorized  
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6 by few previous studies (Daú *et al.*, 2019; Esken *et al.*, 2018; Leandro and Paixao, 2018;  
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8 Velenturf *et al.*, 2019), we contribute to this gap by deepening its theoretical understanding  
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10 and by empirically highlighting how this happens, to thus enlighten scholars, managers and  
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12 policymakers towards a more widespread implementation of CE. In particular, we do so with  
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14 a qualitative approach in the Agri-food sector, which constitutes a relevant case study, as  
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16 detailed in the following section.  
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### 23 **3. Data and methods**

#### 24 *3.1 Research context: The Agri-food sector*

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26 The Agri-food - also referred to as agribusiness - is the second largest manufacturing industry  
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28 (Bolzani *et al.*, 2015), and has undergone numerous changes recently to better satisfy  
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30 consumers and all the stakeholders involved in light of the rapid technological innovations  
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32 and demands for sustainability (European Commission, 2019; Del Vecchio *et al.*, 2022; Fait  
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34 *et al.*, 2019). As a result, this market is evolving towards a perspective that aims more at  
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36 quality than quantity (Nasir and Karakaya, 2014), with comprise increasing attention to health  
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38 aspects of food (Román *et al.*, 2017, Ciravegna and Brenes, 2016). Therefore, companies  
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40 must be able to solve pressing problems concerning consumers and stakeholders, i.e., they  
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42 must offer healthy and quality products by producing and delivering goods and services in a  
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44 sustainable way as well as communicating and interacting with the stakeholders so as to be  
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46 increasingly competitive (Baden-Fuller and Teece, 2020;). Indeed, CSR has been evidenced  
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48 to be increasingly important in the food sector due to the wide range of benefits (Kong, 2012;  
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50 Kong *et al.*, 2019).  
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58 Today's consumers are increasingly attentive to their health and more aware of the purchases  
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3 they make. The policy adopted in the Agri-food market to date is aimed at focusing greater  
4 attention both on food-product quality and, at the same time, on environmental protection  
5 (Spalding *et al.*, 2014). This dual focus is essential also for companies to guide their business  
6 decisions. From this perspective, technological innovation is useful to adapt to market  
7 demand and thus pay attention to quality and environmental aspects, while keeping prices  
8 affordable for the consumer (Kamilaris *et al.*, 2019). As a consequence, the impact of digital  
9 transformation on the Agri-food sector and on the ability to adequately respond to  
10 sustainability requirements is increasingly important (Liu *et al.*, 2011; Colbert *et al.*, 2016).  
11 New technologies make it easier to understand availability, prices and performance of a  
12 product or service (Modgil *et al.*, 2021; Venkatraman, 2017; Warner, 2019). In fact, in recent  
13 years, digital technology capabilities have become one of the strategic assets of Agri-food as  
14 companies modernize various aspects of their production (Annosi *et al.*, 2019). The  
15 innovations include the technologies that monitor equipment and management software, the  
16 correct management of production processes (a distinguishing factor for product quality),  
17 traceability and food safety (the basis of market competitiveness), optimal management of  
18 crops (sowing and harvesting) (Appio *et al.*, 2021). Digitization, even after the pandemic, has  
19 made it possible to limit environmental damage to favour more sustainable working methods.  
20 In fact, even very distant companies have the opportunity to collaborate with one another and  
21 exchange information, attaining enormous economic advantages and with reduced  
22 environmental impact. Improvements can be made regarding citizens' health, education and  
23 living conditions; decarbonisation and the increase of renewable and clean energy; and  
24 responsible models in the fields of transport, construction and the Agri-food sector (Modgil *et*  
25 *al.*, 2021).  
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27 In addition, the supply of Agri-food products may benefit by advancements that allow fast  
28 product delivery to permit launching new products more frequently (Kikuchi and Kanematsu,  
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3 2019). Another important factor in the current panorama of the technologically dynamic food  
4 supply chain is big data (Ardito *et al.*, 2019; Del Vecchio *et al.*, 2018; Elia *et al.*, 2019;  
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6 Acciarini *et al.*, 2020). In fact, big data management can ensure the customer a high degree of  
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8 food safety and traceability as well as product conformity to established standards (Aung and  
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10 Chang, 2014). Technology aids the consumer not only by providing product guarantees but  
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12 also by communicating transparency of operations (Kane *et al.*, 2015). Another IT  
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14 advancement is block chain, which allows storing information safely and quickly to favour  
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16 dialogue between all interested stakeholders (Kamath, 2018). Through the simplification of  
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18 information exchange, it is possible to protect consumers from counterfeiting, which is an  
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20 increasing phenomenon (Brewster *et al.*, 2017), for example using intelligent labels that track  
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22 food products in all food sectors throughout their journey, to guarantee quality and safety to  
23  
24 final consumers (Surasak *et al.*, 2019). Thanks to these recent technological advancements,  
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26 Agri-food is reducing its environmental footprint and improving the product quality to satisfy  
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28 customers and stakeholders (Sharma *et al.*, 2018; Lernon and Verhoef, 2016).  
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35 Given these considerations, Agri-food is a relevant context in which to conduct our study, as it  
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37 is a dynamic environment both due to the pressing attention of its stakeholders to the quality  
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39 and sustainability of the outcomes (Shepherd *et al.*, 2018), as well as to the several  
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41 technological advancements that are undergoing (Tian, 2016; Brenes *et al.*, 2020). As a  
42  
43 consequence, it represents an interesting field where to explore the joint application of CSR  
44  
45 and CE, as the former has been started being considered in food related matters (Kong *et al.*,  
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47 2019; Kong, 2012), and the latter is growing thanks to technological advancements (Pieroni *et*  
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49 *al.*, 2019; Berrone *et al.*, 2013; Cainelli *et al.*, 2020).  
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### 55 *3.2 Research methodology*

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57 In answering the research question of our study, we have adopted an exploratory, qualitative  
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59 research design to study the phenomenon in detail as it facilitates the understanding of  
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3 complex phenomena such those under investigation (Fleming, 2001; Yin, 2009), and helps  
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5 enrich existing theory with new insights from real-world cases to add theoretical  
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7 generalizations to the existing body of research in the field. This method allowed us to  
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9 explore in depth and provide substantial support for the development of preliminary  
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11 theoretical development concerning CE and CSR (Flick *et al.*, 2004; Siggelkow, 2007). To  
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13 this end, we considered eight relevant case studies that allowed us to reach theoretical  
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15 saturation. We aim at enriching the literature in this field with new insights from real-world  
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17 cases in the context of Agri-food. In particular, we have analysed agri-business companies  
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19 operating in Italy, a reference country when dealing with food related aspects, in search of  
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21 similarities and differences to finally add theoretical generalizations to the existing body of  
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23 research concerning how CSR processes can favour the emergence of CE in this sector.  
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28 In setting up the multiple case study (Yin, 2009), we established a sampling framework of  
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30 criteria associated with the theoretical background and research interest of our study: i) the  
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32 case firms had to be organizations well known for the high quality and value of their products,  
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34 thus constituting the perception with which the consumer bases his choices for purchasing; ii)  
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36 the case firms had to have a solid reputation for innovation, quality of management, personnel  
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38 and customer management, financial stability, social stability and exclusive processing of  
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40 production techniques, thus constituting added value to the products, making them more  
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42 palatable in the market; and iii) the case firms had to have adopted CSR approaches, inferable  
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44 from related documents publicly available, i.e., sustainability reports.  
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49 We focused on Italian Small and Medium-sized Enterprises (SMEs) active in the Agri-food  
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51 sector, as SMEs are the most numerous typologies of firms active in this sector, and we were  
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53 able to identify eight organizations meeting the above-mentioned criteria for which  
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55 information is available (i.e., Organization F; Organization GC; Organization DMA;  
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57 Organization S; Organization VDOSMTA; Organization VC; Organization L; Organization  
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GM, by the initial letters of each organization). In fact, Italy is a relevant context for studying the Agri-food sector because the stakeholders active in the country are extremely careful regarding quality and sustainability aspects. Globally, Italy is the sixth largest exporter in the Agri-food sector. It ranks second among European producers in the percentage of companies in the Agri-food that have introduced product and process innovations. Moreover, it is also technologically advanced compared to other countries based on investments made in Information and Communication Technologies (ICT). Finally, among the sectors of the national economy, Agri-food is the most resilient (Food and Agriculture Organization of the United Nations, 2020). We focused on Italian SMEs as they constitute 75% of the total number of enterprises in Italy and thus are the backbone of the national production system, with 80% of the workforce. SMEs contribute to increasing the entrepreneurial level as well as innovation, and therefore become a means for promoting the competitiveness and development of the territory (European Commission, 2021). For confidentiality reasons, their names are disguised. Appendix 1 compares the main characteristics of the sampled firms.

To evaluate how the CSR orientation of the eight organizations lead to the adoption of CE practices, the sustainability reports - which indicate efforts towards CSR - of each company were analysed. We have evidenced the parts of the report where CE principles were clearly evident, referring to, e.g., the 9R model of CE (Kirchherr *et al.*, 2017), which interprets the circular orientation of the single organizations considered in our research. This model identifies the nine strategies (R0 - Refuse, R1 - Rethink, R2 - Reduce, R3 - Reuse, R4 - Repair, R5 - Refurbish, R6 - Remanufacture, R7 - Repurpose, R8 - Recycle, R9 - Recover) that characterize the gradual transition from linear economy to CE (Figure 1). We checked the adoption and level of increase in the aforementioned strategies within the sustainability report of each single organization, to verify their orientation towards circularity.

--- Insert Figure 1 about here ---

#### 4. Results

We have analysed the sustainability reports that have been made publicly available in 2020 by the SMEs being considered that were active in the Agri-food sector in Italy. These reports constitute a tool that takes into consideration the economic, social and environmental impacts of an organization's activity as well as the expectations of stakeholders, allowing for the achievement of strategic and business objectives. The presence of sustainability reports highlights that the companies are active in the field of CSR. We have analysed the presence of the 9Rof CE identified by (Kirchherr *et al.*, 2017), as reported in Figure 1, in these sustainability reports. The results of such analysis, conducted independently by four scholars active in the field of finance and innovation, led to the following results, as also summarized in Figure 2.

Analysis of the sustainability report of Organization F shows that the *“company is historically attentive to the quality control of products with an accurate choice of raw materials”* and *“it has been operating for years in favour of the environment through actions to reduce paper, separate paper collection, recycle plant water, reduce waste, regenerate used cartridges, use anti-pollution paints and care for the greenery around the company itself”*. It is thus clear that Organization F has completely adopted the new way of managing its business (Newell 2015) in line with R1 (rethinking), which highlights the creation of a business model and shared values, thereby rethinking the way of doing business. It also pays particular attention to reducing (R2) paper, cartridges, batteries, oils and packaging. Waste management is an important strategy for the Organization, which can activate procedures and systems aimed at improving the entire process of waste - from its production to its disposal - and which involves various lighthouses up to the reuse of waste materials. It also allows for positive effects on human health and the environment, thus saving and recovering natural resources and optimizing their management. Waste in landfills is significantly reduced and the weight and volume of containers also decreases. In line with the principle of R6 (remanufacture) and

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3 R8 (recycle), the company has decided to use recycled paper and remanufactured cartridges  
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5 with significant economic savings, and thus significantly reduce pollution. The production of  
6  
7 recycled paper in fact consumes less water and energy than the production derived from  
8  
9 natural resources, reducing the number of waste and CO<sub>2</sub> emissions in the atmosphere in this  
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11 context the company responds to the principle of “reuse” (R3) and uses photo catalytic, anti-  
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13 pollution and antibacterial paints.  
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17 Organization GC, in its sustainability report, highlights that “*it has rethought its own*  
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19 *reorganization vis-à-vis the environment and reduced the costs related to its use of water*  
20  
21 *resources by about 40% as well as those related to lighting by using energy-saving lamps,*  
22  
23 *which have cut consumption by 30%*”. Moreover, “*the company recovers sludge, which is*  
24  
25 *then destined for compost; production waste is transferred to other companies and the*  
26  
27 *remaining materials are disposed of and differentiated*”. So, Organization GC has adapted its  
28  
29 entrepreneurial activity to a new way of thinking and redesigned products in new business  
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31 processes with a view to efficiency, which also directs production in qualitative and  
32  
33 quantitative performance, thus responding to the “rethink” (R1) principle. The company  
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35 reduces the costs of using water resources and the cost for lighting in line with the “reduce”  
36  
37 (R2) and “recycle” (R8) principles. This brings to improving energy efficiency and thus  
38  
39 improving performance: e.g., energy consumption to increase energy efficiency or to exploit  
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41 energy in the best possible way could consist of simple actions such as replacing the lighting  
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43 system with an energy-saving one or using a wattmeter to monitor consumption (Corsini *et*  
44  
45 *al.*, 2019).  
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51 The sustainability report of Organization DMA states that “*the company has replaced its own*  
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53 *cars with hybrid cars also with a view to rethinking the company’s policy and sustainable*  
54  
55 *processes, thus allowing it to prevent and reduce pollution as well as improve company*  
56  
57 *performance*”. In addition, “*it has created an electrical and thermal energy system able to*  
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3 *almost entirely satisfy the company's needs; replaced plastic with eco-compatible materials;*  
4 *and reduced the packaging of confections, waste food, and use of waste products in other*  
5 *processes".* In so doing, Organization DMA has rethought new ways of moving the company  
6  
7  
8 outside the schemes of the linear economy into a circular supply chain perspective (Pellegrini  
9  
10 *et al.*, 2020), responding to the "rethink" (R1) principle and to an engineering process that  
11  
12 requires sharing between specialized figures and all the stakeholders involved. In compliance  
13  
14 with the "reduce" (R2) and "reuse" (R3) principles, it reduces energy consumption and the  
15  
16 reuse of water and waste production, CO2 emissions and plastic packaging to minimize the  
17  
18 negative effects of anthropogenic activity on climate change. Paper and plastic are the main  
19  
20 waste produced and the actions taken are aimed at reducing the paper and packaging  
21  
22 consumption as well as increasing the recycling (R8) of these products. To reduce CO2  
23  
24 emissions into the atmosphere, Organization DMA encourages car sharing and the use of  
25  
26 public transport for its employees. Finally, it uses discarded products or parts of them in new  
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28 products with different functions (R7).  
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35 In Organization S's sustainability report, *"the company proposes responsible management of*  
36 *the wastewater from milk processing and the recovery of resources, including large quantities*  
37 *of water thanks to the use of whey concentrator"* and *"highlights contained energy*  
38 *consumption thanks to renewable energy sources, which are implemented by a co generator*  
39 *for energy production"*. Also *"through the company's Green Strategy, large quantities of*  
40 *drinking water are saved; the water obtained from whey is recycled for industrial washing*  
41 *and the internal production of electricity occurs with photovoltaic panels"*. This means that  
42  
43 Organization S responds to the rethink (R1) strategy by incorporating the principle of the  
44  
45 sharing economy through a model that aims to share and optimize consumption for the  
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47 redistribution of goods and services and by instituting virtuous behaviour. Moreover, it  
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49 responds to the "reduce" (R2) principle by creating a by-product, namely whey, from  
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3 mozzarella-production waste. The by-product route is important, because through it a  
4 company can implement a virtuous path and enter into the perspective of CE. From this point  
5 of view, it can implement corporate-saving processes by configuring the activity as new  
6 corporate business, thus allowing it to also reduce corporate costs while operating in the  
7 recycling (R8) and remanufacturing (R6) perspectives. After concentrating the whey, it can be  
8 sold as a secondary raw material to food companies, thereby repurposing them(R7),or reusing  
9 internally in keeping with the “reuse” (R3) principle. Furthermore, regarding the reduce  
10 principle, the organization reduces its water and energy consumption. These processes lead to  
11 saving resources and better using waste while reducing the environmental impact.  
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15 Organisation VDOSMTA states, in its sustainability report, that “*choosing raw materials,*  
16 *recyclable containers, energy recovery processes and environmentally conscious suppliers*  
17 *allows it to produce sustainably for the community and future generations. [...] The plant’s*  
18 *waste water is monitored and continuously kept under control, to prevent possible deviations*  
19 *from the legal standards. The waste is collected separately and disposed of by companies*  
20 *authorised to treat the various materials. [...] Atmospheric emissions are kept under control,*  
21 *as is the impact of the noise produced by its operations on its neighbours”*. Thus,  
22  
23 Organisation VDOSMTA responds to the rethink (R1) strategy, implementing business  
24 models that are the basis of CE with sharing platforms that put product owners in contact with  
25 organizations or individuals, thereby increasing productivity for shared access. Its activity has  
26 an environmental impact that respects the community and the environment in which it is  
27 located, through its choice of raw materials, recyclable (R8) containers, energy recovery  
28 processes, and environmentally friendly suppliers, in compliance with the “reduce” (R2)  
29 principle. Its waste is collected separately and is disposed of by companies authorised to treat  
30 the various materials; it reduces its use of plastic packaging by effectively pursuing its policy  
31 of using as little as necessary. Moreover, the company favours recyclable or compostable  
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3 packaging materials. It reuses (R3) packaging whenever possible, even several times, by  
4  
5 reusing energy within business processes. Its system drainage is constantly monitored and  
6  
7 controlled, to prevent possible deviations from the legal standards and its system's water is  
8  
9 reused with a view to recycling. Atmospheric emissions are kept under control, as is the  
10  
11 impact of the noise produced by its activity. The processing by-products are reused within the  
12  
13 organization itself for the same function they were originally used for, in view of the principle  
14  
15 of "remanufacturing" (R6).  
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19 The examination of Organization VC's sustainability report has shown that *"it welcomed the*  
20  
21 *introduction of sharing platforms, as well as a reduction in plastic packaging"* and *"it reuses*  
22  
23 *parts of products that it uses in other production processes and minimizes waste"*. It is clear  
24  
25 that Organization VC responds to the principle of "rethink" (R1) through the tool that allows  
26  
27 it to contribute to the sharing economy. Sharing platforms operate through the internet, mobile  
28  
29 applications, and social networks for the improvement of services and effective  
30  
31 communication (Rao, 2007). The organization's policy is to move from a linear production  
32  
33 cycle to a CE in which value maximization and resource efficiency are achieved to minimize  
34  
35 (R2) single-use plastics. The goal is to reuse (R3), i.e., maximize recyclable (R8) packaging  
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37 within the same organization and accelerate the development of bio-based biodegradable  
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39 packaging. Often the parts of some products are reused in internal production processes, as  
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41 per the "remanufacture" (R6) principle.  
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47 The sustainability report of the Organization L states that *"the innovation of thought*  
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49 *comprises the fundamental willingness to get involved in the various stages of corporate life;*  
50  
51 *[...] all our factories are equipped with a water purification system, which allows us to*  
52  
53 *minimize the impact on the surrounding ecosystem; our production plants are equipped with*  
54  
55 *a complex system of heat recovery to make processing systems more efficient; there is also a*  
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57 *whely concentrator, which collects the whey coming from the processing of all our plants,*  
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3 *optimizing the recovery process and significantly reducing the environmental impact due to*  
4 *transport; our packaging is from renewable sources*". Thus, Organization L responds to the  
5  
6 rethink (R1) principle through collaborative models of the sharing economy and sharing as a  
7  
8 closed-loop activity that can help the community and the organization itself for the  
9  
10 enhancement of underutilized assets. The company chooses materials and products with 100%  
11  
12 recyclable (R8) packaging with a glass recycling rate of 85%; it uses 100% plant-based inks,  
13  
14 produced using energy created from photovoltaic systems; it recycles and reduces (R2) the  
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16 quantity of products sent to landfill and effectuates CO<sub>2</sub>. The company reuses its production  
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18 waste in internal production, thereby responding to the "reuse" (R3) principle.  
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23 Finally, the analysis of Organization GM's sustainability report shows that "*important*  
24 *investments have been made to improve logistics and transport as well as contain the plant's*  
25 *environmental impact; [...] in addition to transport by ship, it is focusing on rail transport:*  
26 *50% still remains by road, but its goal is to reduce it*" and "*it has built a biomass power*  
27 *plant, which is able to cover 70% of its energy needs and it has reduced its packaging by*  
28 *100%*". Thus, the Organization GM responds to the "rethink" (R1) principle with a greater  
29  
30 awareness of its stakeholders, who are aware that resources are limited and that the current  
31  
32 linear production model is unsustainable. Substituting and acquiring goods through sharing is  
33  
34 an innovative concept that also favours the reduction (R2) of consumption. The company also  
35  
36 uses 75% recycled (R8) and completely recyclable materials, and promotes CO<sub>2</sub> savings by  
37  
38 increasing the use of hybrid cars or public transport. Their packaging is 100% reused (R3).  
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42 From the analysis of the above-mentioned results, it is clear that the publishing of  
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44 sustainability reports (which are not mandatory for companies), in addition to achieving the  
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46 benefits brought about by CSR, also favours the adoption of CE practices (Schallmo *et al.*,  
47  
48 2017). In greater detail, R1, R2 and R8 dimensions are present in all the companies  
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50 considered. R3 is instead present in all of them but one. Finally, R6 and R7 are present in very  
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3 few of them, while the remaining dimensions for circularity are not evidenced at all in the  
4 sustainability reports.  
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8 --- Insert Figure 2 about here ---  
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## 11 **5. Discussion**

12 The concept of CE is linked to an innovative path towards sustainability that pursues not only  
13 the economic aims of the organization but also the environmental and social ones. Indeed, CE  
14 brings several benefits to all the stakeholders involved by aiding the environment and the  
15 society on one hand (Pomponi and Moncaster, 2017) and operations and production flows on  
16 the other (Parida *et al.*, 2019; Ranta *et al.*, 2018a), resulting to be an environmental innovation  
17 (Fernandez de Arroyabe *et al.*, 2021; Dias Angelo *et al.*, 2012). Therefore, knowing how to  
18 encourage the adoption of CE is increasingly critical for all the stakeholders (Del Vecchio *et*  
19 *al.*, 2022). The other managerial approach aiming at sustainable development on which we  
20 focused in this study is CSR. Indeed, recent studies have theoretically affirmed an  
21 interconnection between CSR and CE, and call for additional theoretical and empirical  
22 research in this direction (Daú *et al.*, 2019; Esken *et al.*, 2018; Leandro and Paixao, 2018;  
23 Stoyanova, 2019; Velenturf *et al.*, 2019). The need to investigate the integration of these two  
24 frameworks for sustainability is also supported by the recent synergies that have been showed  
25 to arise between CSR and Research and Development (R&D) investments (Fu *et al.*, 2020).  
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28 Thus, this study fills in this cue by advancing the understanding of the synergistic application  
29 of two above-mentioned phenomena by empirically showing how CSR may favour the  
30 emergence of CE approaches in the Agri-food sector. In greater detail, not every dimension of  
31 CE is benefited and the adoption of the CE practice considered, i.e., 9Rs (Kirchherr *et al.*,  
32 2017), is not progressive among companies but rather dispersed. In other words, CSR favors  
33 the emergence of CE, but in an unstructured way. These outcomes are in line with the  
34 theoretical studies that draw attention to the aforementioned interconnection, and we are  
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indeed providing empirical quantification of such relationship.

The contributions of this study are manifold, impacting theory, practice and policymaking, as detailed below in the following subsections.

### 5.1 Theoretical contributions

CSR is an established business management and governance model based on satisfying stakeholders' expectations. From the perspective of CSR, if a company does not pay particular attention to all interested parties, it will be doomed to fail. In this study, we have evidenced that such theoretical grounding can be extended to the CE phenomenon, which takes into account all the stakeholders involved and aims to benefit the whole society. We highlight how stakeholders' theory is a theoretical lens common to CSR and CE approaches, and can therefore be effectively used to understand how the two phenomena are correlated. None of the previous studies have exploited this theoretical grounding so far, which is indeed crucial to fully grasp the interconnections of the two phenomena. Based on this, we posit how CSR may favour CE, and by adopting an exploratory, qualitative research design we provide evidence of this. While it has been recently shown that there can be synergies between common efforts in CSR and R&D (Fu *et al.*, 2020) due to common expertise and know-how, we have here evidenced how CSR and CE can be synergistically implemented. Thus, knowledge management of CE, towards which research has increasingly focused (Zucchella and Previtali, 2019; Govindan and Hasanagic, 2018; Zhang *et al.*, 2021; Gomes *et al.*, 2021; Vendrell-Herrero, 2021), might start from the CSR activities already undergone by the company. Moreover, we have evidenced that the positive impact of CSR on CE adoption is not structured, as might be thought. The benefits in terms of circularity do not follow the linear approach of the 9R model, evidencing that although CSR already benefits CE, further adjustments by managers and policymakers should be put in place to make CE benefit in a linear way. A further contribution of the study is the way we assessed the transition towards

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3 circularity, i.e., with the 9R model that was recently proposed by Kirchherr (2017), providing  
4 further evidence of the applicability of this model.  
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### 8 9 *5.2 Contributions for practice*

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11 Considering the benefits that CE can bring to all the stakeholders and the whole society,  
12 managerial interest is increasingly embracing this new approach. However, the shift from  
13 linear economy towards CE can imply several costs for organizations. In light of this  
14 transition, the outcomes of this research can be extremely important for a managerial audience  
15 as they highlight how the efforts undertaken aimed at CSR can be also utilized for the  
16 transition towards circularity. In fact, the customer's propensity to purchase sustainable  
17 materials and products also leads the entrepreneur to refine the management practice of  
18 circularity models. Our study has empirically evidenced that CSR can be a useful lever to  
19 encourage the adoption of CE and that it is better for companies to start with CSR first to thus  
20 be already on the road to reach structured CE models. Therefore, companies that have already  
21 implemented a CSR approach can realize they are ready for the transition towards CE, since,  
22 on average, half of the approach should be already in place. Moreover, companies that have  
23 not yet started the transition towards either CSR or CE may be motivated to do so  
24 contemporaneously, because the costs for enhancing CSR will also help embrace circularity.  
25 We are confident that such results can be extremely useful to spread the concept of CE - as  
26 well as to further adopt CSR - among organizations. This is extremely relevant in light of the  
27 recent evidence that some companies have cut their CSR efforts (Fu *et al.*, 2020).  
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### 51 *5.3 Implications for policymaking*

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53 Policymakers are looking for ways to tackle the pressing grand challenges that our society is  
54 facing, and CE is an emerging strategy towards this end (e.g., Circular Economy Package in  
55 EU (De Schutter *et al.*, 2020). To that end, this study provides evidence that favouring the  
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3 emergence of CSR has the secondary effect of benefiting the transition towards CE. As  
4 companies may decide to shift their spending to the development of new products (Fu *et al.*,  
5 2020), especially in the Covid-19 era where resources are scarce, showing to companies that  
6 efforts in CSR be also benefit the transition towards CE and consequently satisfying all the  
7 stakeholders, may be beneficial for the joint diffusion of CSR and CE. Thanks to this, it might  
8 be possible to benefit all three pillars of sustainability, i.e., economic, social and  
9 environmental, both through CSR and CE. Thus, more thorough knowledge of the  
10 determinants of the interconnection of CSR towards the CE could allow policymakers to more  
11 effectively communication and make directed interventions.  
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## 25 **6. Conclusions**

26 Companies should increasingly comply with the stakeholders' requests and favour sustainable  
27 growth, considering economic, political and social spheres. Towards that aim, CSR and CE  
28 can play crucial roles, especially if jointly implemented. The self-regulatory model of CSR is  
29 an older and already structured model, which may constitute a catalyst for the evolution and  
30 implementation of the more recent model of CE.  
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38 Towards this end, in the present research we have theoretically and empirically evidenced  
39 how CSR can promote CE approaches. In so doing, in addition to advancing the scholarly  
40 knowledge about these phenomena, we also provide practical implication aimed at favouring  
41 the implementation of CSR and CE and thus benefit all the stakeholders involved.  
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48 This study is not exempt from limitations, which nonetheless leave space for various future  
49 developments. First, while our study evidenced that CSR favours the adoption of CE  
50 practices, but not a complete transition towards circularity, future research may analyse  
51 whether companies that undergo CSR are more oriented towards CE than those who did not.  
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57 In addition, future studies can analyse how fast and easy the complete adoption of circularity  
58 is for companies that have already developed some CE practice thanks to CSR. Such  
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3 outcomes will further strengthen the relevance and benefits of CSR for companies. Moreover,  
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5 as this study has been conducted in the Agri-food sector in the Italian context, which is a  
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7 relevant case study due to its technological advancements and the great attention towards all  
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9 the stakeholders, future research can focus on different businesses and geographical locations  
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11 to further validate the outcomes and examine whether differences exist related to other sectors  
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13 and locations. Furthermore, while this study has been conducted on eight SMEs active in the  
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15 agri-food, which is a sample sufficient for reaching theoretical saturation for this study and in  
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17 line with recent qualitative research conducted in the context of Agri-food SMEs (O'Connor,  
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19 and Kelly, 2017), future studies may consider enlarging the number of organizations  
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21 considered to further validate the outcomes of this research. Finally, while in this research we  
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23 have focused on SMEs, future research may consider other type of firms, e.g. listed firms, to  
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25 evaluate differences as compared to the sector analysed in the current research.  
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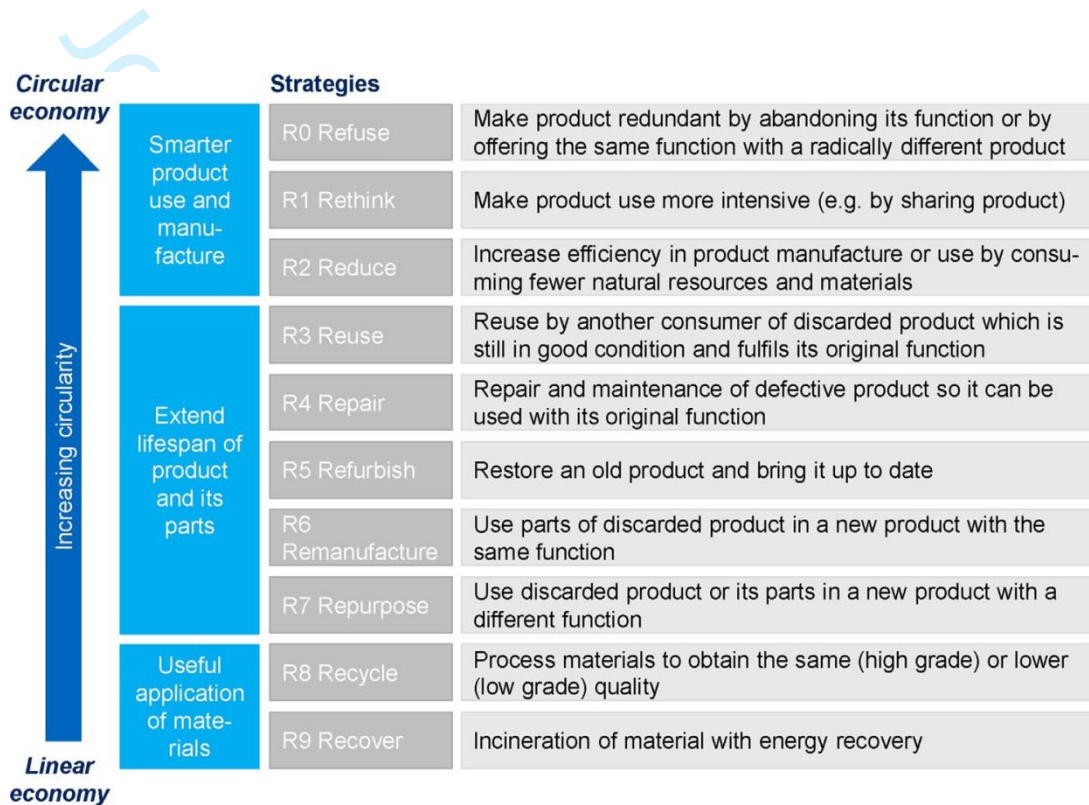
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**Appendix**

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**Figure 1.** The 9R model used in this study to assess the inclination towards circularity (source: Kirchherr et al. 2017).





## Appendix

**Table AI.** Comparison of the main characteristics of the sampled firms (source: authors' elaboration).

Companies	Headquarters	Production sector	Consumer Products	Reference markets
Organization F	Verrucchio (Rimini)	Cereal sector Production and sale of semi-finished products for pastry and ice cream	Spreads and liqueurs Decorations for pastry	70% by the national market and the remaining 30% by the world
Organization GC	Maierato (Vibo Valentia)	Produces and sells gut, roe, freshly processed tuna	Mackerel fillets, anchovy fillets	Products are marketed on the national territory, while 7% of the total turnover is absorbed by foreign markets (Canada, Austria, France, Switzerland, Australia, Slovenia, United States, Lithuania, Great Britain, and South Africa).
Organization DMA	Flumeri (Avellino)	Durum wheat flours	Conventional dry pasta, egg pasta, vitamin zed pasta	The markets to which it is addressed are mainly foreign (United States, United Kingdom, Europe, Japan, Arab countries) where about 60% of the production is exported. The rest is marketed in Italy
Organization S	Ascoli Piceno (Marche)	Dairy sector	Milk and dairy products	Its reference markets are central and northern Italy, while 1% of its turnover is exported to France and Austria
Organization VDOSMTA	Creazzo (Vicenza)	Wine and spirits sector	Sells its products (wines) mainly in Italy to the large-scale retail trade	Its target market is mainly Italy
Organization VC	Isola della Scala (Verona)	Wine and spirits sector	The first company in Italy for the creation of braille labels.	Its target market is mainly Italy
Organization L	Busche Cesiomaggiore (Belluno)	Dairy sector	Milk and dairy products	Market with products of excellence recognized and appreciated by many Italian and international consumers
Organization GM	Rovigo (Veneto)	Cereal sector	It produces soft and durum wheat flour Kamut, organic flour	Sells products in the national and international market