

## RESEARCH ARTICLE

# Factors and strategies for circularity implementation in the public sector: An organisational change management approach for sustainability

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## Abstract

The circular economy (CE) is seen as a model of production and consumption where resource use is reduced and extended in closed-loop life cycles. Organisations have been fundamental in contributing towards CE for which limited outcomes are known from public organisations. This research aims to identify the factors influencing the implementation of CE and the strategies that support such implementation in the public sector. An organisational change management perspective was taken. Semi-structured interviews were conducted with employees from the central public sector in Portugal to gather insights. Results reveal issues such as organisational culture, CE awareness for people in public sector organisations and leadership related to areas of strategy and management, human resources, and communication and assessment as key elements to consider in shifting towards circularity for this type of organisation. This study contributes to the research that has called for an expansion of the scope of CE to include human-based issues by viewing a public organisation as a multi-dimensional system transitioning to circularity.

## KEYWORDS

circular economy, organisational change management, public sector, stakeholders, strategies, sustainable development

## 1 | INTRODUCTION

There is a need for a switch towards more sustainable approaches away from the dominant linear model of production and consumption. The circular economy (CE) is seen as an alternative, a circular model that substitutes the 'end-of-life' concept with closed-loop life-cycles of materials, products and resources being reduced, alternatively reused, or recycled (Goyal et al., 2020; Kirchherr et al., 2017). Desing et al. (2020) argue that in addition to a transition towards a sustainable management of resources through circularity, a systemic view is needed thus requiring "a shift in the paradigmatic base, as it implies a

change in the way all social actors, be it individuals, businesses or governments consume and produce, and more generally, on how they see the world" (Desing et al., 2020: p. 8).

As organisations realise the need to address negative environmental, economic and social impacts of their activities, they have demonstrated increasing interest in sustainability activities (Lozano, 2018), which is seen as an important prerequisite for a CE transition (Sarja et al., 2021). Considering the potential of CE to become an effective operative strategy for sustainability (Cecchin et al., 2021), the current momentum of the CE may support a shift beyond incremental sustainability efforts towards more fundamental

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change (Kirchherr et al., 2017). Most work on CE implementation at organisational level has been focused on private companies and corporations; limited CE outcomes are known from public sector organisations (PSOs) (Barreiro-Gen & Lozano, 2020). The diverse and hybrid forms of public and private organisations suggest that organisations and ownership should be seen in a continuum rather than considered in a dichotomy (Carter et al., 1992; Christensen et al., 2007). In the public sector, there are different types of PSOs going from central and local government departments, agencies, public corporations to higher education institutions (HEI) in some cases (Lecerf et al., 2017; Ramos et al., 2007).

This study is focusing on core public administrative organisations (Bozeman & Bretschneider, 1994). Public administrations are bureaucratic and hierarchical organisational structures. Bureaucracies are described as organisations with a strict adherence to rules and procedures, with a structured chain of authority as well as clear, rule-based specifications of duties and role descriptions (Rainey, 2008). In contrast with corporations pursuing profits, PSOs follow multiple political and social goals, including public accountability requiring greater emphasis on transparency, representation and inclusiveness (Christensen et al., 2007; Van der Voet, 2014). In addition, PSOs are distinct actors in the economy, performing multiple functions and roles for business and society such as service provider, resource reallocator, policy-maker and regulator but also facilitator and leader steering the sustainability transition (Aggestam-Pontoppidan & Andernack, 2016; Dentchev et al., 2017). PSOs, like companies, need to change and adapt to the current and upcoming environmental, climatic and resource scarcity challenges by integrating CE principles into their organisational system (Barreiro-Gen & Lozano, 2020; Zvirgzdins et al., 2020). Integrating circularity in public procurement processes such as purchasing performance instead of stock for instance is one way of implementing circularity in PSOs operations (Klein et al., 2020). Public purchasing is often presented as the organisational tool of the public sector to drive the CE transition in companies and society (Jannink, 2018; Kristensen et al., 2020).

Nevertheless, evidence suggests that CE initiatives in general are still mostly embedded in a linear, “business as usual” way of thinking so far resulting in incremental improvements and innovations focusing on resource efficiency and waste recycling (Mendoza et al., 2019a; Pheifer, 2017; Preston, 2012). Some researchers are arguing for the development of CE approaches that may bring fundamental and transformative social and cultural changes that are necessary to a transition towards sustainability (Calisto Friant et al., 2020; Kirchherr et al., 2017). There is a call for an expansion of the scope of CE to include social and human-based issues such as social norms, everyday practices of resource use (Hobson, 2016; Hobson & Lynch, 2016), empowerment, cooperation and participation of all stakeholders involved (Moreau et al., 2017; Schulz et al., 2019). Integrating these transformative CE approaches in organisations such as PSOs requires significant changes in the organisational system including culture, leadership styles, management skills and learning and human resources (Lozano, 2018).

The field of organisational change management for sustainability (OCMS) research examines how organisations manage and implement change towards sustainability by identifying factors that are influencing the process of implementing sustainability activities at organisational level (Bögel et al., 2019; Lozano, 2012). Those factors can either be barriers resisting change or success factors driving and accelerating the change process (Millar et al., 2012; Verhulst & Lambrechts, 2015). Authors have identified strategies to overcome the barriers or to leverage the drivers (Lozano, 2012), because if those factors are not addressed, the initiatives are likely to fail in transforming organisations into truly sustainable ones in the long run (Baumgartner, 2009; Kirchherr et al., 2018). However, while substantial research has been conducted examining organisational changes for sustainability in companies, corporations and HEI more specifically (Blanco-Portela et al., 2017; Kiesnere & Baumgartner, 2019; Lozano, 2013), relatively little is known about organisational changes for sustainability in PSOs (Lozano, 2018), and similarly for change processes towards circularity.

This paper uses OCMS as a theoretical approach through which to examine the factors influencing the process of implementing circularity practices in PSOs and to explore the supporting strategies. As little empirical evidence has previously been gathered on OCMS in the context of CE in PSOs, a public sector case study approach is taken using stakeholders' perspective to contribute to linking OCMS and CE implementation by capturing the most relevant and accurate insights into the factors and strategies for organisational change towards circularity in PSOs. Consequently, this research aims to answer the following question: What are the organisational change strategies supporting an implementation process towards circularity in PSOs and what might be the factors influencing such a process?

The rest of the paper is structured as follows: the next section presents an overview of the OCMS literature and the connection with the emerging research on CE implementation in PSOs. Thereafter, the methodology used to collect data from relevant stakeholders and information on the case study approach are provided in Section 3. Results and discussion on the influencing factors and the strategies to take up organisational changes for CE implementation are introduced in Section 4. Finally, Section 5 provides the main conclusions and comments on the limitations and implications of the research.

## 2 | ORGANISATIONAL CHANGE MANAGEMENT FOR SUSTAINABILITY AND CIRCULAR ECONOMY

Organisations including PSOs can be considered complex social systems because they involve individuals with behavioural patterns, organisational structures with values and norms, information, procedures and resources, which all interact with each other and their environment (Doppelt, 2003; Lozano, 2009). Understanding how an organisation's elements (such as culture, management, procurement and operations) interact with each other and with external forces

(such as socio-economic or political contexts) allows improving the chances for implementation of changes, by planning and creating new conditions within the organisation. In this context, some authors have described organisational change as a planned and managed process moving from the status quo to a new state (Bennis et al., 1969; Ragsdell, 2000).

Arguably, organisations have a higher degree of control over changes internally and can act proactively on those, whereas they can only react to external factors (Lozano, 2013). To address the internal influences, OCMS focuses on the social and human-based aspects in organisations such as values, visions, organisational culture, learning capabilities, employee empowerment, leadership and managerial aspects (Lozano, 2013; Lozano & Garcia, 2020). Resistance to change hinders the change process in organisations. Attempting to move away from the way things are can be seen as threatening to those with a vested interest in or simply familiar with the existing situation (Gill, 2002; Senge, 1990). Those insights are also valid for PSOs. Moreover, the values constituting an organisational culture and the mind-sets of people in PSOs and companies also reflect external influences (Klein et al., 2020; Van der Voet, 2014). As social, and therefore open systems, organisations are simultaneously and continuously influenced by wider external socioeconomic and political contexts and institutional factors (Hartley et al., 2002; Sayer, 2000). Therefore, to proactively initiate as well as institutionalise long-lasting paradigmatic change towards circularity in PSOs, social and human-based elements of organisations need attention in addition to resource efficiency-, technological- and engineering-oriented initiatives and acknowledgement of the connections between internal and external factors.

The selection of circular practices depends on the perspective, such as producer or consumer for example (Reike et al., 2018). Ultimately, CE principles invite organisations to minimise inputs and outputs to sustainable levels (e.g. increase efficiency, use renewables, reduce consumption and waste), to close material and energy loops (recycle, recover) and maintain the highest value in the system the longest (e.g. reuse, share) (Suárez-Eiroa et al., 2019). Most often when speaking of CE actions, the practices suggested are reduced to the 3Rs (reduce, reuse and recycle) (Geisendorf & Pietrulla, 2018). These 3Rs have been completed with other Rs such as refuse, repair, remanufacture, repurpose and have been ranked from the most desirable (refuse) to the least desirable (energy recovery) (Reike et al., 2018). Regarding PSOs, previous research has identified practices of reduce, reuse and sharing, dematerialising administrative processes as some circular-relevant initiatives to undertake (Klein et al., 2021). Moreover, CE-based practices in PSOs can be targeted in public procurement processes, operational processes and in public service delivery actions but also in human resources activities, managerial and strategic initiatives, and awareness efforts to help people in PSOs shift to circular values and practices when it comes to handling resources (Klein et al., 2020).

Organisations' culture corresponds to the values (what is important) and norms (what is believed to be appropriate behaviour) that are shared amongst the individuals and groups inside the organisation (Doppelt, 2003). Sustainability implementation requires that

employees' and managers' values and behaviours are underlain by sustainability principles (Baumgartner, 2009; Kiesner & Baumgartner, 2019; Siebenhüner & Arnold, 2007). However, it can be difficult to integrate sustainability or circular values into organisational culture. Linear "cradle to grave" thinking is so deeply rooted as the dominant paradigm, its values are hard to recognise (Doppelt, 2003). Organisational culture is generally considered as a significant barrier (Linnenluecke & Griffiths, 2010). Very little attention has been given so far to the linkage between organisational culture and CE implementation. Peris San Miguel (2016) analysed how to create an organisational culture supportive of CE implementation in one company. Driven by the profit motive, the values observed in the company, such as aversion to risks, focus on customer satisfaction and cost, reactive attitudes and short-term thinking are barriers for CE adoption. Those values need to be balanced with mind-sets valuing also holistic and long-term thinking, proactivity, risk-taking and seeking innovative solutions. Others studies such as Diaz et al. (2021) and Santa-Maria et al. (2021) mention the importance of the organisational culture in successfully creating sustainable product development processes in a CE and to promote the development of circular business model innovations. However, no studies have looked at what values and norms could drive or hinder CE implementation in the public sector. Even given a favourable culture towards sustainability, Doppelt (2003) states that "the public sector has the added influence of the constraints of the political process, which limits an agency's ability to establish its own mission and goals and define the way they will be achieved" (Doppelt, 2003: p. 77). Indeed, PSOs have the added challenge of the political influences on organisational goal ambiguity (Pandey & Wright, 2006; Rainey & Bozeman, 2000). PSOs are characterised as relatively bureaucratic and a bureaucratic culture is often associated with aspects of conformism and dependence to higher authority, passiveness and compliance to minimum standards (Claver et al., 1999; Doppelt, 2003; Osborne & Brown, 2012). These values and norms might be considered as hindering any efforts to introduce CE practices and might require different strategies than those seen in the private sector to initiate meaningful change. It can be further argued that PSOs are continually confronted with change in their day-to-day tasks as they need to be responsive to diverse interests and to develop policies in line with changes in government and society (Deutz & Kildunne, 2021) and therefore taking care of housekeeping actions towards circularity in PSOs might not be a priority.

OCMS literature suggests that leveraging transformative organisational change requires changing the governance system (Doppelt, 2003). Organisational governance comprises the institutional framework e.g. leadership aspects such as the formal authority and also the informal mechanisms of governance such as decision-making processes and information flows (Baumgartner, 2009; Lozano, 2009). Doppelt (2003) describes governance as "the way information is gathered and shared, decisions are made and enforced, and resources and wealth are distributed" (Doppelt, 2003: p. 78). He argues there is a need for new forms of governance away from the highly fragmented, linear, patriarchal model that concentrates authority at the top, disempowers employees of their personal responsibility and accountability, and blocks the inflow of information to the

stakeholders involved outside and inside organisations. Ensuring systems thinking, transversal collaboration, employee empowerment and stakeholder engagement are some of the governance initiatives put forward by Doppelt (2003) and others (Lozano, 2013; Verhulst & Lambrechts, 2015; Witjes & Lozano, 2016), as promoting transformative change towards sustainability management of resources. In CE literature, few studies have been undertaken to explore the influence of governance issues in the context of a change towards circularity in PSOs with the exception of studies exploring the integration of circular criteria in public procurement (PP) processes pointing out change issues related to the lack of knowledge, competence, experience, skills and thus a lack of training (Alhola et al., 2018; Crafoord et al., 2018).

In addition, the importance of active and supportive leadership as the essential igniting factor to orient organisations has been emphasised both for sustainability and circularity implementation (Mendoza et al., 2019a; Millar et al., 2012). Nevertheless, empirical studies suggest there is a lack of interest from the leadership in sustainability and circularity implementation in PSOs (Domingues et al., 2017; Mendoza et al., 2019b). For instance, Droege et al. (2021c) identify a lack of leadership commitment as a cultural challenge preventing PSOs to implement CE assessment. Company leaders in some sectors are recognising the benefits of implementing CE in their businesses and therefore are embracing CE (Bocken et al., 2016), but this appears not to have happened yet amongst public leaders.

This absence of active leadership might lead to a diversity of other challenges such as lack of training for employees, lack of information, communication, integration of stakeholders inputs and limited financial resources for sustainability and CE initiatives (Domingues et al., 2017; Droege et al., 2021c). Lozano (2009) reviewed a number of individual and organisational barriers that can be more easily overcome with the presence of proactive organisational leadership but also with the presence of individual leadership, of champions who are dedicated to drive the day-to-day change efforts. Champions have been described usually as being people in high positions of authority able to legitimise the change efforts such as human resource executives, quality officers, or head of strategic planning (Kotter, 1996; Rogers, 1995). They are able to persuade, convince others of the importance of sustainability or CE and join their efforts by building teams, providing rewards and recognition but also training and educating their colleagues so that they become change agents and thus produces a multiplier effect, as discussed by Kanter (1999) and Lozano (2009). Other authors have emphasised public entrepreneurs as individuals bringing innovation in PSOs that have the same characteristics as private entrepreneurs but have additional challenges of focusing on an often-unclear mission and goals as opposed to profitability (Carnes et al., 2019; Klein et al., 2010). Likewise in PSOs individuals may function as change agents (e.g. encouraging educational initiatives), thereby helping to leverage sustainability transitions (Bögel et al., 2019). Initiatives are unlikely to succeed, though, if all the burdens are placed on individuals; champions may be necessary, but they are not sufficient.

Indeed, leveraging factors to initiate change towards circularity requires specific strategies and actions. Viewing an organisation as a multi-dimensional system (Klein et al., 2020), strategies to overcome barriers can be initiated in various parts of the organisation such as top management or human resources. Researchers have suggested a series of steps on how private companies and PSOs can successfully transition towards sustainable and circular organisations (Doppelt, 2003; Kotter, 1995; Zaak, 2015). These start with establishing a sense of urgency to change, forming leading teams, then building a vision with clear goals and rules, communicating the vision, involving all stakeholders and finally monitoring progress, adjusting and scaling up. In PSOs, collaborative efforts and participative initiatives such as group work and seminars are good leverage points for sustainability transitions (Bögel et al., 2019). Those approaches to promoting change could be associated with Green Human Resource Management (GHRM), which has been highlighted as relevant for the implementation of CE in organisations (Pham et al., 2019). Indeed, the adoption of GHRM strategies such as eco-focused recruitment, environmental training, creation of green teams have been stated as having a potential positive impact in implementing CE principles thus potentially helping to develop a favourable organisational culture, employee empowerment, teamwork, increased capabilities and managerial competencies towards organisational circularity (Chiappetta Jabbour et al., 2019; Hopkinson et al., 2018). Studies on circular PP have also highlighted the need for investments in education and training initiatives to enable procurers to identify more easily CE opportunities. They have emphasised the need for more cooperation, dialogue and exchange amongst public authorities and especially with suppliers to address the lack of interaction (Alhola et al., 2018; Öhgren et al., 2019; UNEP, 2018; Witjes & Lozano, 2016). Furthermore, PP needs to be seen as part of a wide circular initiative, not an isolated process to be undertaken with more environmental awareness.

Communication is fundamental for any kind of change process (Doppelt, 2003; Kotter, 1995). This is to overcome the lack of CE awareness and information in PSOs, collecting relevant and up-to-date monitoring data, evaluating and assessing, as well as reporting the progress towards established goals and targets (Klein et al., 2020). Circularity assessments, reporting and stakeholder engagement strategies are crucial (Mendoza et al., 2019a) although CE assessments are not undertaken in PSOs so far and adopting these will be a further challenge (Droege et al., 2021b; 2021c). Nevertheless, assessment initiatives for sustainability and circularity such as the development and use of organisational indicators have been shown to be great tools to aggregate and easily communicate the most important information, improve dialogue and engagement with stakeholders, and increase general awareness and acceptance of new practices in PSOs (Domingues et al., 2015; Droege et al., 2021a; Ramos & Moreno Pires, 2013). Moreover, producing progress reports represent a vehicle to promote accountability in the public sector and strategically motivate employees and other stakeholders to implement the planned practices and to achieve the objectives stated in the plans and programmes (Ball & Grubnic, 2007; Doppelt, 2003).

## Influencing factors

Categories	Factors
Organisational culture	<ul style="list-style-type: none"> <li>Values and norms aligned with the changes</li> </ul>
Governance system	<ul style="list-style-type: none"> <li>Collaboration, employee empowerment, stakeholder involvement</li> <li>Leadership commitment</li> </ul>

Factors  
addressed using  
organisational  
change  
strategies

## Strategies for organisational change

Categories	Strategies
Strategic initiatives	<ul style="list-style-type: none"> <li>Statements with vision and goals</li> <li>Champions</li> </ul>
Human Resource Management	<ul style="list-style-type: none"> <li>Training and awareness raising</li> <li>Experts recruitment</li> <li>Transversal teamwork</li> </ul>
Communication and assessment	<ul style="list-style-type: none"> <li>Monitoring and assessment</li> <li>Reporting</li> </ul>

**FIGURE 1** Theoretical framework for organisational change management for sustainability

In summary, this section highlights different factors and strategies suggested by OCMS literature to address and implement in the context of organisational changes towards circularity. As seen in Figure 1, organisational culture and governance structures appear to be significant leverage points to address in order to promote changes towards sustainability and circularity. Considering the specific characteristics and goals of the public sector (Christensen et al., 2007), further research is needed on how the public sector can take full advantage of an inclusive view of CE to bring forward a transformational shift not only in organisational processes but also amongst its employees and other stakeholders.

This section has also pointed out that the CE literature focusing on the organisational level of the public sector is still limited considering the importance of this sector in the transition to a CE for sustainability. Furthermore, previous OCMS literature and the emerging research on CE barriers and drivers suggest that more research is needed on the organisational change process towards circularity and how it can be managed in PSOs. Therefore, using an OCMS approach to inquire into CE implementation in PSOs has the potential to reveal challenges and opportunities and to recommend strategies to move towards more circular practices in PSOs.

## 3 | METHODS

### 3.1 | Research design

A case study approach is suitable for research that requires detailed understanding of social and organisational processes (Cassell & Symon, 2004). Consequently, this research applies a case study approach to inquire about organisational changes for CE in Portuguese central PSOs. Central level PSOs have been determined as the scope of this study because of their contribution and impact as an employer, purchaser and regulator at national level (Meyer & Leixnering, 2015) and because they have significant influence on the

public sector at regional and local level as well as on other sectors (Ball & Grubnic, 2007). Central public sector consists of different types of organisations undertaking a variety of activities and tasks (Canfora et al., 2019). Although recognising the diversity of operations, central PSOs are generally dealing with employees, including technical staff and managers, working in office buildings undertaking common administrative office level tasks. Consequently, central public sector can thus be defined as the sub-sector that is composed of all administrative departments and units of the State and other central agencies whose competence and authority cover the entire national economic territory (DGAEP, 2009; OECD, 2008).

Moreover, the Portuguese Central Public Administration (PCPA) was chosen because it has adopted a National Action Plan for Circular Economy 2017–2020 (PAEC) to implement CE in Portugal and therefore manifests an interest and commitment to CE at multiple levels. Furthermore, the Portuguese government created an inter-ministerial coordination group in the context of the PAEC that includes experts at technical and management levels across ministries, which indicates that internal stakeholders might have a significant level of knowledge and awareness of CE and that it is an important topic in public administration. The PCPA is made of direct and indirect state administration including all ministries and their central services, public institutes, general directorates, and agencies (DGAEP, 2021). Most of the organisations of the PCPA are scattered in different buildings around Lisbon and the surrounding metropolitan area as well as in other parts of Portugal, but in smaller numbers.

### 3.2 | Interviews

Investigating the internal stakeholders' perspective on organisational changes for CE is valuable in illuminating situated knowledge and employees are important internal stakeholders holding particular knowledge and experience on their organisation (Coutinho et al., 2018). The employees' perception allows to access in-depth



information on the reality of practices based on everyday routines of people working in the organisation (Kucharska & Kowalczyk, 2019). Consequently, semi-structured interviews were conducted to gather insights from central public sector employees on the organisational change factors and strategies for CE implementation. Semi-structured interviewing is a qualitative method that is suited to explore in depth and with flexibility the interviewees' thoughts and expand on the description of their experiences and points of view (Denscombe, 2010) on various topics such as the implementation process of CE principles and practices in PSOs. The interviewees were first selected via a key contact person in a purposive manner and then using a snowball method (Bryman, 2012). Two sampling criteria were considered: (i) interviewees should have relevant knowledge and experience on CE and sustainability issues (Flick, 2009) and (ii) they should work in departments and units dealing with environmental issues within the PCPA or be a part of the inter-ministerial coordination group in the context of the PAEC. This resulted in 14 interviews with employees working in different departments of organisations belonging to the PCPA in positions ranging from environmental engineer, head of sustainability divisions or departments to political advisor on sustainability issues, and with work experiences in their current positions ranging from a few months to 20 years. In Table 1, the interviewees are identified according to their areas of expertise in order to guarantee anonymity. Seven ministries were included in this sample: Ministry of Environment and Climate Action, Ministry of Agriculture, Ministry of Health, Ministry of Sea, Ministry of National Defence, Ministry of Economy and the Presidency of the Council of Ministers.

The interviews were conducted in English and lasted approximatively between 40 and 80 min. The level of English spoken in the ministries is in

general high—language was not a major barrier to the selection or availability of interviewees and was not a problem during the interviews. Following Creswell (2014) recommendations, a guide was created to structure the interview and questions while also planning for potential follow-up questions. The interview guide consisted of three parts: (i) Introductory questions; (ii) CE general questions; (iii) CE barriers and drivers' questions (see appendix). Ethical approval was obtained by informed consent from all the interviewees about the purpose and use of the data collected, therefore ensuring confidentiality and anonymity of the interviewees (Berg, 2001). The interviews were audio-recorded, transcribed and coded in order to identify themes or categories related to organisational change factors and strategies (Berg, 2001; Creswell, 2014). Using content analysis as analytical method (Denscombe, 2010), some categories were first created based on a previously made CE literature review (such as “awareness barrier” and “leadership”), and otherwise “grounded categories” have been created inductively as revealed while coding the transcripts (such as “CE not a priority” and “political cycles barrier”) (Berg, 2001). Research quality issues such as reliability, validity, forms of bias from the interviewers, as well as the interviewees, cultural and language limitations have been taken into account and addressed throughout the data collection and analysis stages (Saunders et al., 2016). For example, reliability of the answers was checked by asking the questions twice but worded slightly differently (Berg, 2001) and validity of the interview responses were checked with the analysis of documents and reports (Creswell, 2014).

### 3.3 | Documents and reports complementary analysis

A complementary qualitative content analysis (Denscombe, 2010) was carried out on four governmental reports and two legislative documents linked to the PAEC-related initiatives. Those reports and documents were selected because they were mentioned and referred to by the interviewees as relevant sources of additional information on CE practices and strategies. They were collected from the organisations' websites or provided by the interviewees themselves. The reports and documents were inductively examined for mentions of relevant organisational change strategies related to CE implementation to complement the categories produced during the analysis of the interviews. This enables the triangulation of the information obtained from the interviews and therefore to increase results validity (Creswell, 2014). However, the limited scope of this secondary data sample must be acknowledged, as this text analysis is undertaken only as a complement to the data gathered from the interviews.

## 4 | RESULTS AND DISCUSSION

### 4.1 | Factors affecting change towards circular economy implementation in central public sector organisations

Identifying the factors influencing change, whether they are challenges or opportunities to the implementation of circularity, facilitates

**TABLE 1** Overview of the interviewees

ID	Interviewees and their area of expertise	Duration of interview (approx.)
I1	Green public procurement expert	1 h 10 min
I2	CE and eco-innovation expert	1 h 20 min
I3	Expert in waste management	1 h 05 min
I4	Expert in waste management	1 h 05 min
I5	Expert on environmental issues	1 h
I6	Expert on strategic planning and environmental issues	40 min
I7	Expert in environmental and sustainability legislation	45 min
I8	CE expert	55 min
I9	CE expert	50 min
I10	Environment and energy management systems expert	55 min
I11	Expert in sustainable agriculture and agri-food production	1 h
I12	Marine litter expert	50 min
I13	Expert in environmental and sustainability-related statistics	1 h 10 min
I14	Public procurement expert	1 h

the identification of strategies that can address either the presence or absence of those important elements and thus contributing to accelerating the shift towards sustainability in organisations (Bögel et al., 2019; Lozano, 2012), including CE in PSOs. Therefore, this section focuses on highlighting and analysing the factors mentioned during the interviews. Insights into factors influencing a change process towards circularity in PSOs were not analysed in the reports or documents.

Some interviewees (I1; I2; I4; I7; I11; I13) argued that people are unwilling to embrace CE practices because CE is not considered as a priority for the organisation or the administration. This discourse could suggest that the culture in the interviewees' organisations is not aligned with CE because it is not seen as an organisational priority for the leadership and thus for the majority of the employees. Indeed, this mention of lack of prioritisation has been explicitly linked to the issue of strategic leadership, top management support and commitment to CE as they stated, *"I think the main problem is that this is not a priority for them (the decision-makers). They don't care about telling people to do that, so people don't do."* (I2). The leadership aspect has been highlighted in the interviews as a barrier where leadership efforts fail to make employees understand the importance of CE practices in their day-to-day life in the workplace. It has also been mentioned as a driver of CE implementation in the PCPA where motivation to implement would be *"leadership; Putting a flag that hits a priority for the point of public policy. That will orient the behaviours."* (I6). In this study, commitments to CE have been initiated and led by the Ministry of Environment and Climate Action and the Portuguese Environmental Agency, which specifically works on environmental and sustainability issues in the public administration, and this, might be the leadership effort perceived as a driver by certain interviewees. These results are in accordance with the OCMS literature in companies that emphasises greatly on proactive supportive leadership as one of the sine qua non condition beyond compliance to minimum standards to fundamentally change companies towards sustainability (Lozano, 2013, 2015; Millar et al., 2012). Similarly, leadership is being highlighted in the public sector literature as a crucial driver for instance to implement sustainable PP practices (Roman, 2017), as well as a challenge where the lack of leadership hinders efforts in sustainability reporting (Domingues et al., 2017).

Furthermore, a couple of interviewees (I2; I13) pointed out the employees' unwilling attitude for instance towards sustainable printing and the use of reusable products stating that CE practices are difficult to implement in daily routines because circularity requires to change a culture deeply rooted. The difficulty of culture change has been similarly highlighted for companies (Linnenluecke & Griffiths, 2010), although for Portuguese central PSOs this indicates that a traditional bureaucratic public sector culture might present greater difficulties than in the private sector because it is more attached to conforming to the long-established rules and procedures that is usually detrimental to the needs for innovation (Claver et al., 1999; Osborne & Brown, 2012) which is required for a change towards circularity. Moreover, one interviewee (I13) pointed out the specific challenge of PSOs being subject to changes with political

cycles characteristic to the public sector providing an anecdote that *"two years ago, the government put some environmental criteria in public procurement and I contacted the entity that manages this kind of data to see the statistics but right now we do not have a database with the data it was important for the government at that time (...). This is also the problem of the political timetable"* (I13). This confirms the conclusions from previous literature arguing that the political process in the public sector constrains the ability of PSOs to define clear goals, including regarding sustainability and the way to achieve them (Doppelt, 2003; Pandey & Wright, 2006). A few interviewees (I6; I8) also mentioned that cultural challenges might also be due to the lack of definition and therefore a misunderstanding of what CE is, describing that *"people expect to have less comfort"* (I8) when moving towards circularity or that people are uncomfortable with the concept of reuse in practice which is opposed to the current global culture of linear consumption that is also reflected in Portuguese central PSOs. Other cultural challenges were highlighted by interviewees (I2; I3; I10; I13; I14) mentioning that regarding *"the behaviour of people it might be a culture change and it takes time; it is not something that happens overnight"* (I10) and that CE should be adopted in every part of organisations. Therefore, CE is perceived as not straightforwardly relevant or as an overwhelming endeavour which makes people reluctant to take initiative. These results on cultural challenges and detrimental values for CE are similar to conclusions in studies on CE barriers in the private sector which have demonstrated that cultural barriers such as an hesitant company culture to take on activities in line with CE principles not seeing the value added of those efforts are considered the main CE barriers by businesses and policy-makers (Kirchherr et al., 2018). Hence this mention of culture in the interviews and some indications of how current values in central PSOs are for now not sufficiently aligned in CE principles to motivate a scaling up of change processes.

The costs of investing in CE development were seen as a barrier in the short term to several interviewees (I3; I6; I7; I9; I10; I14), to the detriment of long-term and transformational benefits saying: *"we don't have the resources"* (I7), or *"we need more investment"* (I9). They emphasised that financial resources are not allocated by top decision-makers to make the necessary changes for real shift towards circularity but might only allow for incremental changes. The CE literature similarly mentions financial constraints as a barrier for companies, for whom convincing the owners or decision-makers might be difficult in view of the existence of such high up-front investments for a long-term perspective for returns (Kirchherr et al., 2018; Ritzén & Sandström, 2017). Conversely, certain interviewees (I9; I12; I14) mentioned the financial reasons as a driver in the case where decision-makers in PSOs value the cost-saving benefits to implement CE practices. The existence of at least perceived cost barriers makes the CE vulnerable to political prioritisations and the economic circumstances. CE can be seen as a luxury item that decision-makers must feel like they can afford.

In addition, throughout the conversations, the interviewees (I5; I9; I11; I13) placed great emphasis on the existence of hierarchical decision-making processes in PSOs. Decisions are made by top management, there are strict rules and procedures to comply with, which

act to prevent change and disempower individual efforts amongst employees. PSOs are generally described in the literature as subject to high levels of bureaucratic procedures and restrictive regulations thus making changes and adapting a difficult process in the public administration sector (Bögel et al., 2019). Moreover, an interviewee highlighted that “CE is a transversal topic that needs to be implemented and get contributions from all departments” (I2), referring to inter-organisational and cross-departmental collaboration. However, the interviewee underlined the difficulty to navigate and share information and knowledge in an environment that is compartmentalised in sectoral silos, which often do not dialogue with each other, as highlighted by Doppelt (2003). This comment suggest referral to the siloed governance structures characteristic of PSOs where CE or sustainability issues are dealt with in dedicated separate departments and agencies (e.g. environmental agency) rather than constructing CE as everyone's responsibility (Dahl Sönnichsen & Clement, 2020; Doppelt, 2003). Structural and regulatory constraints might represent a bigger hindering factor than for private companies that usually have less cumbersome and more flexible procedures and for which regulatory and legal aspects are seen rather as a factor motivating companies to change (Aloini et al., 2020).

Human capital was also stressed (interviewees I2; I7; I9; I10; I13) as a central factor referred to as people dedicated to working on CE and sustainability for the public administration, or as public employees working efficiently and being aware of sustainability and CE issues related to their tasks and actions. Indeed, several interviewees (I2; I3; I6; I8; I13) identified a lack of awareness and general knowledge of CE as an underlying obstacle for PSOs. The importance of raising the awareness of managers and employees on the importance of adopting circular practices daily in the workplace has been stated several times saying for instance that “the public servants, the politicians should have CE training and education so it's another vector that strategically is defined for public administration, to have awareness and skills” (I2). Studies looking at CE in PSOs have highlighted the importance of awareness and capacity building especially regarding PP and the need to train procurers in order to give them the appropriate skills and knowledge to make informed decisions during the purchasing processes using CE criteria (Alhola et al., 2018; Crafoord et al., 2018). Finally, some interviewees (I1; I4; I6; I11) pointed out that the importance of information, data and status assessment on CE implementation initiatives to encourage the adoption of CE practices and stated that this information is not yet there and therefore needs to be produced, assessed and made available through communication.

In summary, the results of this section show that the factors for CE implementation in central PSOs revolve around aligning the organisational culture with CE principles, having leadership supportive of CE and recognising it as a strategic priority, changing the internal regulations and procedures, raising the awareness and knowledge of CE and having the availability of different resources including financial and human resources, and information.

## 4.2 | Strategies addressing the factors of change towards circular economy in central public sector organisations

The factors can be addressed with specific strategies encouraging the change of those factors in favour of CE implementation in PSOs. As a result, following Klein et al. (2020) organisational circularity dimensions of a PSO, the areas of (i) strategy and management, (ii) human resources, and (iii) communication and assessment are identified as relevant categories for clustering the strategies mentioned by the interviewees and in the documents. Those strategies as presented in this next section are mainly oriented towards establishing leadership and top management support, developing awareness and CE practices through human resources-related efforts and promoting change through communication and assessment.

### 4.2.1 | Strategy and management

One of the major factors in the CE implementation process is the importance of CE being valued as a priority by the leadership and within the organisation. During the interviews, several strategies were identified that support CE implementation using the strategic and management level of PSOs (see Table 2).

Firstly, strategic commitments such as developing and adopting policies, plans, and programmes that include a CE vision, targets and guidelines for PSOs to shifts towards sustainable circularity were highlighted as necessary elements. Interviewees (I2; I3; I4; I6; I10; I11; I13) referred for instance to a resolution approved by the Portuguese Council of Ministers in 2018, with measures aiming at promoting the sustainable use of resources and the adoption of circular solutions in public administration, specifically promoting the reduction of paper consumption, other printing consumables and plastic products (PCM, 2018). This resolution as an internal regulation favourable to CE is showing that the Portuguese government is committed to using public resources more sustainably starting with what they perceive to be key and/or easy items—but still an end of pipe focus. The National Strategy for Ecological Procurement 2020 (ENCPE 2020) (APA, 2019) was mentioned by the PP experts (I1; I14) which is based on the priority goods and services of the EU Green PP criteria and some of the criteria are linked to CE. The fact that the interviewees have highlighted those national strategic initiatives shows the importance

**TABLE 2** Overview of strategic and management level initiatives mentioned during the interviews and indicated in the documents

Strategies
Integrate CE practices in strategic plans, policies and programmes that include targets and guidelines on rules of procedures
Have CE champions amongst employees and managers
Designate a focal point responsible to implement, collect and report on CE practices
Establish working groups on organisational CE issues



of strategic commitment and leadership in promoting action and pushing for a general willingness to change and implement CE which has been indicated as a key issue for OCMS (Millar et al., 2012). It has been demonstrated in previous literature on PP for instance that if top managers are supportive of CE or sustainability, and integrate CE targets, objectives and practices in organisational planning, the employees are more likely to implement those CE practices (Brammer & Walker, 2011; Dahl Sönnichsen & Clement, 2020).

Secondly, leaders and top managers must first be supportive of CE themselves. One interviewee (I8) mentioned the importance of leaders and employees embracing a strategic view and representation of their personal practices towards CE and sustainability. Having CE champions (Mendoza et al., 2019a) in central PSOs could be an innovative way of showing leadership and strategic commitment at an individual level within and amongst PSOs. Literature on OCMS has demonstrated the importance of individuals as change agents in organisational change (Davis & Coan, 2019), where people in PSOs with leadership competencies can use their interpersonal skills to promote a transformation in the organisational culture (Bögel et al., 2019). In addition to top-down planned leadership strategies, it is the individual and personal leadership behaviours of managers and employees that have significant influence on the change process (Kotter, 1996; Lozano, 2009; Rogers, 1995). Although having champions was highlighted only by one CE expert, more generally, the potential for the public sector to transition to circularity and its importance as a role model leading by example for the rest of society and other sectors have been pointed out multiple times as an aspiration during the conversations with many interviewees (I1; I2; I3; I7; I8; I10; I11; I12; I14). The role model figure of the public sector has been advocated for in the literature (Reike et al., 2018) but evidences of such leadership efforts are still slow to appear.

Finally, two other strategic initiatives have emerged from the interviews that are oriented towards aspects of governance in CE implementation. A couple of interviewees (I2; I3) indicated that, in the context of the Portugal National Action Plan for CE (PAEC) and its coordination, having a focal point person that is responsible for the reporting and maintaining the communication channels between the organisations and the coordination group is a significant feature in the implementation process. This practice could be seen as contributing to breaking down the siloed governance structures of PSOs previously mentioned as a barrier and thus addressing the need for more transversal collaboration as emphasised by Bögel et al. (2019) and Mendoza et al. (2019a). Increasing inter-organisational and cross-departmental collaboration for instance with focal points would help initiate practices and reflections in every department and organisation but more importantly coordinate and monitor efforts around planned strategic circular initiatives. Furthermore, collaboration was said to be clearly needed because CE is an issue that covers many different sub-topics. An interviewee talked about the difficulty and the necessity to collaborate to implement circularity saying: *"I want a contribution from my colleagues, (...) because circular economy is very transversal. I have my opinions but I'm not an expert in certain areas, so I need their contribution"* (I2). Interviewees (I1; I5; I14) have also frequently mentioned

**TABLE 3** Human resources related strategies mentioned during the interviews and/or indicated in the documents

Strategies
Recruit expert people to work on CE/sustainability issues in public administration and people with CE skills
Conduct training sessions with CE themed workshops or presentations
Install signs and instruction posts on the correct use of products and equipment (e.g. recycling system)
Adopt guidelines for a common circular resource management policy in public administration (e.g. a common responsible printing policy)
Implement good practice awards competitions amongst employees and managers

the existence and importance of working groups on specific topics related to CE, for instance to develop and implement circular PP practices in public administration. The establishment of targeted working groups or taskforces could also be an initiative to promote collaborative approaches to create innovative solutions in favour of organisational CE in central PSOs. This mention of working groups corresponds to the call made by authors in previous CE studies for the creation of dedicated working groups within PSOs but also with other PSOs or other external stakeholders to facilitate the development of a realistic CE strategy and its implementation (Mendoza et al., 2019a; Nunes et al., 2018).

#### 4.2.2 | Human resources

The lack of, and therefore the need to invest in dedicated human capital for sustainability and CE was another prominent theme to address (I2; I7; I9; I10; I13) such as by hiring people specifically expected to bring and spread CE expertise and skills into public administration as a strategy to promote organisational change for CE in PSOs (see Table 3). This could also be materialised in the creation of dedicated departments for sustainability/CE matters, where a person would be in charge of this area and a clear mandate of that service would be established (Figueira et al., 2018). The literature has similarly argued that GHRM-based strategies linked to recruitment have the potential to contribute to organisational sustainability and thus to organisational circularity and the required organisational changes in companies (Chiappetta Jabbour et al., 2019; Renwick et al., 2013). In addition, one of the major strategies recurrently pointed out by the interviewees (I2; I4; I7; I10; I13) is conducting training sessions in the form of CE themed workshops, meetings or presentations for public employees and managers but also for suppliers, service providers, partners and collaborators. Those training activities would have the purpose of raising the awareness and knowledge of people on CE concepts, principles and practices to implement in the organisation, such as the use of digital platforms, the digitization of documents, the responsible use of printers and paper or the correct disposal of waste in the recycling system. An interviewee mentioned the relevance of

cross-departmental workshops saying, “it’s in a kind of educational objective and also for our colleagues to understand or to be aware of a subject which is not part of their working area” (I8). Similarly acknowledging the key role of people and their learning capabilities for organisational change in companies, authors in the field of OCMS have claimed that green employees may be influenced by GHRM strategies such as training (Davis & Coan, 2019; Renwick et al., 2013) and the same can be argued in the context of CE and the public sector where training and education are crucial strategies in the CE implementation in PSOs thus creating organisations in which the culture of its employees might be more oriented towards circularity.

Other GHRM-based strategies have been pointed out by the interviewees (I3; I4) as shown in Table 3. Such as having sign posts, instructions as well as guidelines clarifying the rules for the correct use of resources promoting individual change towards circularity and helping to increase the awareness and implementation of practices around the sustainable use of resources and thus changing the dominant linear organisational culture. Furthermore, implementing good practice award competitions in PSOs was mentioned (I12) and has been established in the literature as an efficient way to promote good sustainability performance and to communicate and share on the good practices that have been successfully integrated previously and can be scaled up (Hartley & Downe, 2007). For instance, in Portugal, the National Defence and Environment Award is an award for environmental good practices in military units pertaining to the Portuguese Armed Forces (Portuguese Ministry of National Defence, 2021).

### 4.2.3 | Assessment and communication strategies

The interviewees indicated that some of the major barriers to overcome in a CE implementation process are the lack of general knowledge and awareness of CE as well as the lack of CE-related data and information in central PSOs, reflecting challenges in society generally. Consequently, the importance of information and communication around CE through strategies aiming at producing and disseminating CE information was a topic throughout the conversations with the interviewees and in the documents (see Table 4).

**TABLE 4** Assessment and communication strategies mentioned by the interviewees and indicated in the documents

Strategies
Develop and use indicator systems to measure organisational CE performance
Conduct energy efficiency diagnostics and audits
Implement stock management systems of resources
Use digital questionnaires to collect employees' and managers' feedback on CE practices
Organise conferences and events to disseminate updated knowledge and practices
Publish reports on CE organisational performance

A crucial aspect in organisational sustainability or CE implementation processes is related to assessment and communication, including data monitoring, evaluation, management and reporting of the performance of CE practices and their impacts (Klein et al., 2020; Singh et al., 2012). The need for monitoring and assessment initiatives have been highlighted by several interviewees (I1; I4; I6; I11) as important tools to guide and follow strategic commitment, as well as to help monitor and drive individual practices and to evaluate the CE performance of PSOs and if results of reducing consumption for instance are being met. In the literature, strategies such as assessment frameworks and the use of indicators are considered crucial elements in CE implementation in PSOs (Droege et al., 2021b; Klein et al., 2020) and have been significantly researched for sustainability in PSOs (Coutinho et al., 2018; Lundberg et al., 2009).

Having a CE organisational indicator system has been viewed (I2; I4; I7) as essential to assess, as well as to communicate on the consumption of energy, water and materials according to targets, such as for paper consumption. The interviewees and documents indicated that the PCPA has a 25% reduction target in expenditure on paper consumption and printing consumables for 2019. Those results correspond to the literature that has acknowledged the importance of developing and using goals, targets and indicators for assessing and reporting CE in PSOs, and the need for further research in this area specifically in the context of PSOs (Droege et al., 2021c; Mendoza et al., 2019a; Migliore et al., 2020). Other strategies such as implementing efficiency diagnostics, conducting audits or having an inventory/stock management system to monitor the circularity of materials and products stocks and flows have also been noted especially in the documents as relevant strategies that could be implemented to support CE implementation in PSOs.

Additionally, using internal digital online questionnaires has been mentioned by an interviewee (I4) as a stakeholder engagement and assessment tool to collect CE information from stakeholders such as employees and managers. This is similar to the approach developed by Coutinho et al. (2018), centred on informal stakeholder-driven sustainability performance assessment, from the perspective of employee voluntary collaboration. The interviewees have generally underlined the importance of involving people in the implementation process, of engaging stakeholders that are at the heart of the intended transformation and to give the capacities to change and feel part of the change.

Furthermore, several communication strategies were mentioned (I4; I10), such as organising conferences and events to present information on the current CE organisational initiatives. The role of communication in sustainability implementation has been acknowledged as fundamental considering the complexity of the issue and the plurality of understanding of the concept (Doppelt, 2003; Genç, 2017). The use of reports that share information on the CE organisational performance of central PSOs is an important communication strategy that has been mentioned (I3; I5; I10). In the context of CE, studies focusing on assessment and communication in PSOs are still lacking with the exception of Droege et al. (2021b) that has co-developed a framework for CE assessment for PSOs. In addition, several authors have stressed

the importance of disseminating and informing stakeholders about circularity or sustainability performance, of monitoring and assessment results, as well as to communicate and share on the good practices of PSOs (Domingues et al., 2017; Droege et al., 2021c).

In summary, this section has shown that there are key strategies to implement to support the implementation of CE practices in PSOs and to address the factors influencing the change process towards circularity. The strategies discussed include initiatives oriented towards establishing leadership and top management support, focusing on human resources efforts to develop the employees' awareness, knowledge and capabilities of CE practices, and promoting change through communication and assessment on CE.

## 5 | CONCLUSIONS

This research has used an OCMS approach to examine what factors might influence the implementation process of circularity practices in PSOs as well as the strategies that might support the implementation of circularity over time. This study contributes to the research on CE that has called for an expansion of the scope of CE to include human-based issues for a circular society (Hobson & Lynch, 2016). As shown in Figure 1, previous literature on OCMS suggests that organisational culture, governance aspects are important challenges or opportunities to further the implementation of sustainability in organisations (Doppelt, 2003; Lozano, 2009). In addition, strategies suggested by an OCMS perspective to encourage the change of culture and governance are strategies to help establishing leadership and top management support, to focus on human resources efforts to develop people's awareness, knowledge to become change agents, and to be accountable with appropriate CE assessment and communication strategies (Bögel et al., 2019; Klein et al., 2020). Adding an OCMS perspective to the research on the CE implementation in PSOs enables the integration of the study of those other dimensions that were missing in the CE literature and that are essential to pay attention to in order to encourage the further integration of CE practices in PSOs and to build a holistic view of CE implementation.

The conducted research has demonstrated that the factors and strategies to promote organisational change towards sustainability are also relevant in the context of CE implementation in PSOs. Furthermore, this study reveals specific challenges in a public sector context compared to private companies: Firstly, the need to change a deeply rooted bureaucratic culture which reflects tendencies towards elements such as passiveness, conformism to unquestioned long-established rules and procedures (Claver et al., 1999; Osborne & Brown, 2012). Secondly, the importance of moving away from siloed governance structures (Doppelt, 2003) by creating innovative and collaborative cross-departmental and cross-organisational governance dynamics enabling the adoption of CE practices in PSOs' operations. This highlights the importance of focusing on building the conditions for new types of thinking to emerge amongst individuals and groups in addition to formal technical upgrades in organisations. Finally, the added constraint of political cycles in the management of PSOs

hampering the ability of PSOs to define clear goals with a long-term vision for public administration matters (Doppelt, 2003; Pandey & Wright, 2006).

These results provide a base to start reflecting on the specificities of PSOs in the context of a transition to circular management of resources and to circular practices. Through the examination of the PCPA, this research has given preliminary insights into how PSOs could take full advantage of an inclusive view of CE and promote further research to examine and evaluate specific change programmes in PSOs and in other national, regional and local public sector contexts with approaches such as Theory of Change (Weiss, 1995). Although this is a study of core public administration organisations, the organisational change factors and strategies identified, and the insights gathered are applicable to other types of organisations including corporate and private companies. Strategy, management, human resources, communication, and assessment are areas that are present in all types of organisations. Therefore, further research is encouraged to explore the application of an organisational change management perspective to help in the transition towards circularity in other organisations and more specifically in private companies.

This research includes certain limitations that are important to acknowledge. First, it is identifying factors and strategies without providing a roadmap or guide to start the change process towards circularity using an OCMS approach. Building visions and roadmaps depends on the context and priorities for a PSO and its administration which need to be established on a case-by-case basis. Therefore, additional research is suggested to establish a prioritisation of the identified strategies which could help public sector practitioners in identifying which is the most important factors and strategies to focus on. In addition, the scope of the study was limited to "internal", organisational factors of change towards circularity in the public sector, but which also reflect wider external, contextual settings and structures. These are variable between places and over time and both difficult to disentangle from internal factors. Financial barriers to the CE, for example, are not just a matter of budget priorities within a PSO but reflect top-level government decisions and responses to potentially international economic circumstances beyond government control too. Therefore, it is important to consider PSOs as systems embedded in and interacting with diverse contexts that need to be further understood. Consequently, research is also recommended to explore further the contextual and institutional factors impacting the CE implementation process in PSOs.

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