



# A Guide to People Management Practices Focused on the Circular Economy: A Theoretical Approach

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. Author CKG designed the study, managed the literature searches, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors ATS and CRCL managed the analyses of the study. Author CRCL supervised the overall project and the final version of the paper. All authors read and approved the final manuscript.*

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## **ABSTRACT**

**Aims:** The training and development of people is essential for the companies that want to adopt the Circular Economy, but little has been objectively discussed in the literature on the subject, leaving several gaps for research. Then, the main goal of this study is to identify the people management practices organizations must adopt for the circular economy to happen in their processes and businesses.

**Study Design:** Literature review and analytical assessment.

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**Place and Duration of Study:** Estate of São Paulo, Brazil, companies, experts, and general literature, between June 2019 and July 2020.

**Methodology:** The study used a theoretical approach to people management practices in the general context as well as in the context of the Circular Economy. Then, a subjective analysis of the interpretation was performed to find correspondence between standard requirements and Circular Economy practices. Finally, a conceptual model was created.

**Results:** The Circular Economy was characterized as sustainable development, justifying the need for human resource management to be oriented toward the Circular Economy. It was shown that 20% of articles in the literature address the need for people management oriented towards the circular economy. The relationship of the thirty-one identified practices with the standard requirements was divided into four dimensions: Organizational Culture; People Development; Leadership; and Team Development. A conceptual model was built based on the identified practices and classified into the four dimensions.

**Conclusion:** The leading practices that best contribute to the Circular Economy context are divided into four dimensions and are recommended to be adopted for the successful transition to the Circular Economy. This research contributes to the human resources management in organizations transitioning to a Circular Economy and fills a gap in the development of people for such transition. Academically, it presents a contribution to the studies of people management in the context of Circular Economy for the changing organizations.

*Keywords:* Circular economy; people management; practices; sustainability; human resources; team development.

## 1. INTRODUCTION

### 1.1 Context

The circular economy is an economic concept that proposes to make the most of resources and material goods through the reduction, reuse, recovery, and recycling of materials, and energy, in addition to rethinking consumption and disposal habits and refusing products that harm health and the environment [1]. Inserting the circular concept at the micro-enterprise level depends directly on the people involved since a company is made up of employees who need to adopt this practice, suppliers who need to collaborate synergistically, and consumers who need to demand products from a circular process [2,3,4,5].

The "human side" of the circular economy is rarely remembered when adopting this new concept [4,6]. With this, the effectiveness in implementing the circular economy becomes a more arduous path as organizations adopt the proposed circular economy models in their processes and businesses but with little focus on the power of human resources to drive innovative and sustainable initiatives [6].

Given the high number of companies that are adopting or that wish to adopt this new concept of economy, a factor that deserves greater emphasis is human resource management

(HRM) for the effectiveness of successful circular businesses [6,7,8]. HRM can develop competencies and skills aimed at the circular economy to ensure that this concept is effectively implemented, generating less rejection by those involved concerning adopting the circular economy and better results in its implementation [8,9 10].

#### 1.1.1 Statement of the problem

Based on the referred status of the human resources management, we sought to gather information to answer the following research problem: "How to systematize the practices of people management oriented to the Circular Economy that support organizational performance"? Therefore, the main objective of this research is to systematize the best practices of the Circular Economy in people management. The practices found in the literature review were systematized in the structure of the NP 4427:2018 standard [11], resulting in people management practices oriented to the Circular Economy. Thus, the scientific contribution of this research is a structure of people management practices for the transition to CE.

This article comprises six sections, the first being the introduction section. Section 2, the bibliographic survey of the practices divided into four dimensions. Section 3 presents the method used in this research. Section 4 presents the

subjective analysis of the relationship of practices with NP 4427:2018. Finally, section 5 presents the conclusions and suggestions for future research.

## 1.2 People Management Practices

People management concepts have constantly been evolving due to the emphasis on its systemic and strategic focus [12]. The adoption of standards is a way to demonstrate that the organization complies with the management practices credibly. In this way, in Brazil, some practices of ISO 9001:2015 [13] are adopted directly related to people management practices. ISO 10015:2019 [14] is part of the people management environment, which aims to assist the organization in managing skills and developing people. ISO/TC 260 also elaborated on the standardization of knowledge management (ISO 30401:2018) [15], recruitment guidelines, and human governance guidelines (ISO 30405:2016) [16]. Although these standards cover essential parts of the people management system, they only cover part of the structure of a people management system, leaving some practices to be remembered.

A Portuguese standard, NP 4427 – “People Management System: requirements” [8] is a worldwide standard that allows the organization's specific certification of the human resources management system. It was developed to be compliant with ISO 9001:2015 [13]. NP 4427:2018 covers the entire people management structure: sequentially attracting, retaining, and developing the organization's people. Thus, implementing of the people management system following the NP 4427:2018 standard guarantees a better development of people management, allowing better results in organizational performance [11].

For organizations to evolve in their adoption of Circular Economy principles, it is necessary to invest in people management to develop members of an organization (employees, entrepreneurs) [2,3,4,5]. Rizos et al. [3] highlighted the need for more trained salespeople to market products and services with Circular Economy practices. Cole et al. [17] recommend the availability of quality labels for reused products with reliable information and shelf life, believing that this action can contribute to breaking this paradigm in the consumer's mindset.

The understanding of the benefits of Circular Economy in organizations also needed to be identified. Fonseca et al. [5] confirmed that organizations with ISO 14001 certification demonstrate a higher understanding of CE due to environmental performance and value creation being part of the company's premises. Companies with this certification already have the technical and technological know-how, which favors the transition to CE; companies that need more know-how consider adopting new technologies irrelevant [3].

Knowing details in the transition to CE contributes to the development of shared value throughout the supply chain [7]. There needs to be a driver in the chain to disseminate specific knowledge and expertise to each stakeholder to optimize the product life cycle [7]. In this aspect, leadership can corroborate the business, and in this way, investment in training and development in the Circular Economy is favorable [3].

According to Rizos et al. [3], the lack of dissemination of CE knowledge throughout the chain may justify the high number of companies that report the lack of support from their supply and demand network in the transition to the Circular Economy. The authors concluded that small and medium-sized companies enter the market with "green" products as being the minority. Depending on how the chain members intend concerning this type of business, they need help to keep practicing the Circular Economy in the value chain. Haanstra, et al. [7] also concluded that most companies are unprepared for the transition to circularity. In addition, role reversals (supplier-customer and customer-supplier) point to a need to change the mindset of those involved from linear “product-oriented thinking” to circular, lifecycle-oriented thinking.

It is concluded that the transition to a Circular Economy depends on how knowledgeable the company is about CE, supported by a "green" mentality culture capable of disseminating know-how throughout its supply chain. It is also necessary a good communication between the parties involved and creativity to promote their products arising from a circularity [3,4,7].

### 1.2.1 Circular organizational culture

Since the Circular Economy intends to use resources more intelligently and at their highest level, servitization is considered one of its implementation aspects in organizations.

However, Wilkinson et al. [18] confirm that creating a culture of services is necessary for this to occur in companies. On the other hand, Awan et al. [19] recommend a green innovation culture that promotes creativity and design thinking while meeting a company's routine procedures.

Also, following green issues, Ojo et al. [20] argue that a green culture is needed, with institutional policies and support mechanisms for adopting Green Information Technology among employees. For Kivenzor [21], defining a coherent culture for the currently globalized market is worrying, given the expansion and necessary relationship with other cultures. The author points out that issues of ethical principles and the perception of inappropriate adoption can make negotiations difficult. Since the Circular Economy is an expansion in the global market and one of its proposals involves suppliers and customers, Kivenzor's [18] concern should also be considered in organizations with Circular Economy concepts.

Thus, the model proposed by Ambekar et al. [22], illustrated in Fig. 1, to measure the organizational culture for low carbon, can be an ally in getting to know suppliers and customers before starting a negotiation.

The proposal by Ambekar et al. [22] considers organizational culture in eight categories: "Red",

"Antagonist", "Obligatory", "Early Adopter", "Follower", "Transitive", "Pragmatism", and "Green". Together, these categories are called carbon culture by the authors. The proposal has three parts: determinants that can become a carbon crop, a description of the carbon culture and categorizing the supply chain with the carbon culture, and capabilities to measure carbon culture.

Despite identifying the need for a culture incorporated into the Circular Economy principles, only some contributed to listing how this culture should be within organizations. Only Wilkinson et al. [18] suggest top-down management attention, and Awan et al. [16] point out that the company's mission should include social responsibility to bring the company's values and strategies to all members.

Bernal et al. [23] concluded that when organizations try to promote sustainability in their business, they try to change the values their members are used to. These authors proposed a model helping the organizations change their values in the mindset of their members so that all adopt sustainability. The model developed by Bernal et al. [23] is based on the Mindfulness Nurturing concept, which nurtures emerging values and creates a perspective for cultural change in the organization.

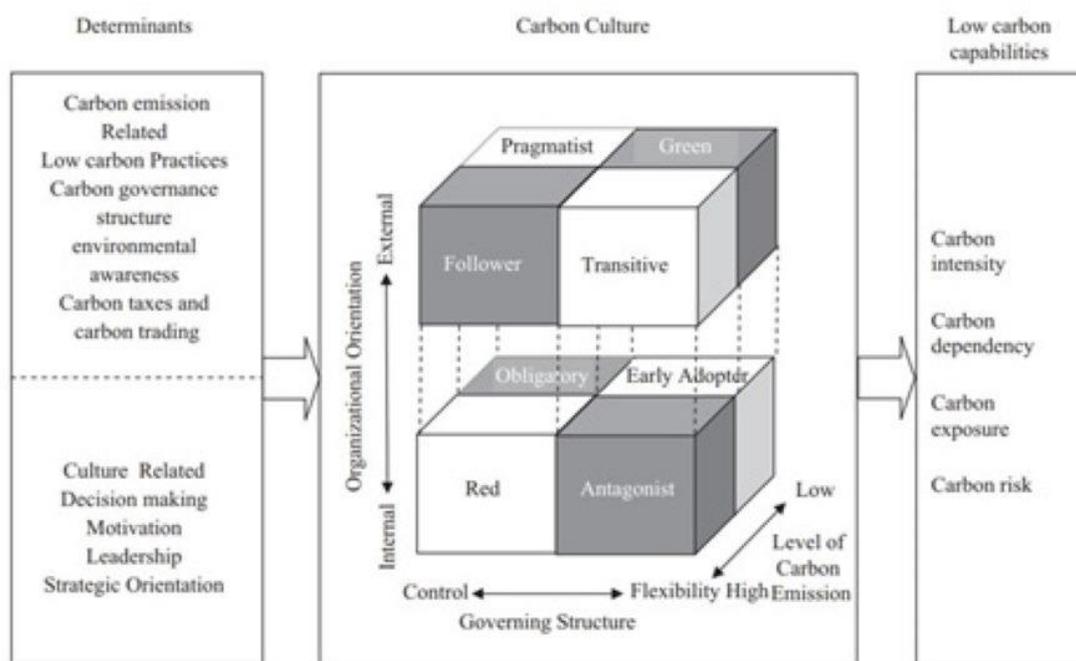


Fig. 1. Proposed framework for adopting a low-carbon culture [22]

### 1.2.2 People development

The PM addresses the issue of people development, as it provides skills, competencies, and knowledge to the participants. Hopkinson et al. [1] analyzed, for 30 years, an example of implementing a circular business model and concluded that competencies, such as agility and application of its capabilities to circular economic changes, is a key factor for any practical Circular Economy initiative.

Li et al. [24] argue that by providing training to employees, GP contributes to achieving the goals of green sustainability within the organization, especially in terms of understanding the Circular Economy. As stated by Korhonen et al. [25], if there is no understanding of the Circular Economy, its positive effects on the company's performance will not be achieved.

In their research, Windfeld and Brooks [26] concluded that the lack of knowledge to classify medical waste hampered the progress of sustainable practices within the cases studied. As previously explained, training provides knowledge to employees, and it is essential to train the workforce in Circular Economy practices [27] with investment in education in ecological activities within the organization, such as disposal, recycling, waste classification, environmental management [26,28], as well as knowledge of resources that can help and even facilitate the implementation of the Circular

Economy, such as Green Information Technology, which guarantees the environmental performance of organizations through the sustainable production, consumption, use, and disposal of Information Technology devices [20].

Dimante et al. [29] formulated the skills that future professionals working in circular businesses must have, as shown in Fig. 2. Fig. 2 is a survey of the study, carried out by the authors, of the skills that professionals must have to work in companies with the Circular Economy concept. In addition, the authors include the means for professionals to acquire these skills, such as expert support and putting attitudes into practice, among others. This model can serve as a basis for universities to prepare future professionals still in their higher education training.

Daily et al. [27] also emphasize that training and qualifications are often provided only to employees at the operational level, believing that leaders and managers already have the necessary skills. However, these authors make it clear that all hierarchical levels need to be evaluated on whether they have a significant level of qualification in environmental issues and, thus, if necessary, receive essential training.

In addition to the skills and abilities acquired, Li et al. [24] also argue that training provides increased employee motivation and task commitment, thus improving the organization's performance on sustainable issues.

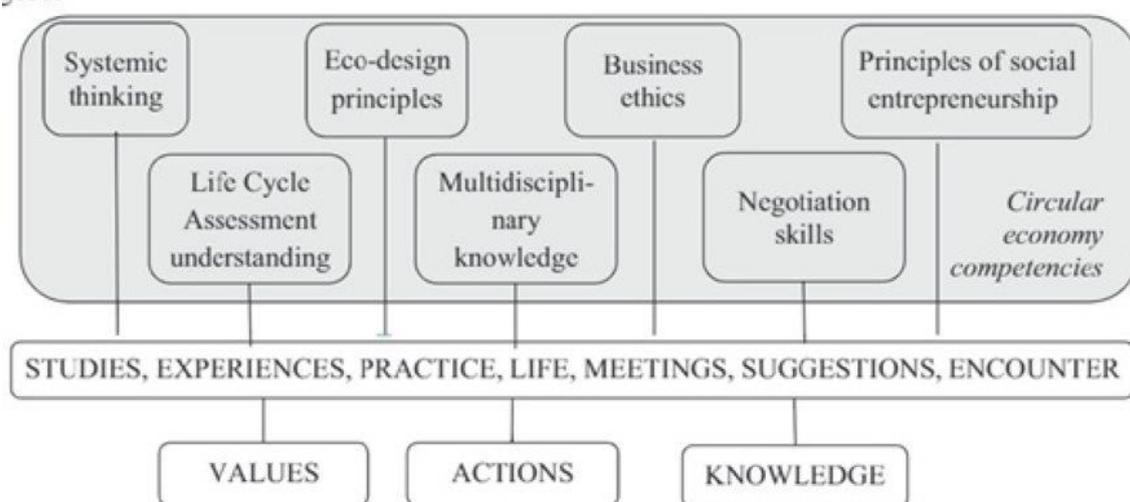


Fig. 2. Development of skills for the Circular Economy in education [29]

### 1.2.3 Leadership

A leader at the organizational level is responsible for directing a particular team. Defining the leader's characteristics in circular businesses is necessary for this context. For Blass and Hayward [30], leaders in circular economy businesses have the responsibility, among many others, to know about issues relevant to society and to be aware of external factors, such as environmental and political factors. This knowledge is essential within an organization, as such matters make it possible to take advantage of its resources, thus avoiding new expenses or investments in raw materials. In this way, leaders become promoters of good environmental and social practices, and contribute, in an essential way, to the diffusion of the Circular Economy.

Therefore, the profile of leaders in organizations with circular concepts is the driver of good practices in environmental concepts, since they lead people in the desired direction [31]. Belaud et al. [32] make it clear that visionary leadership is an interesting profile for this type of organization, as it is characterized as an incentive and supporter of the search for expansion.

It is interesting to state that visionary leadership is an opportunity for greater effectiveness in the results of the Circular Economy. Nevertheless, to Dimante et al. [29], some factors overlap as necessary for the leaders of an organization with a Circular Economy, such as sustainable development competencies, acting in the workplace with global thinking, long-term thinking, and domain to measure results and focus on sharing the lessons learned.

However, it is necessary to go further. Awan et al. [19] suggest that leadership uses convergent and divergent thinking to find new ideas on environmental issues in the organization. The authors make it clear that divergent thinking should be used to generate many ideas; convergent thinking will focus on the choice of ideas to be implemented. The Circular Economy is an approach that involves innovation in processes and business, thoughts that facilitate creativity contribute to the organization's strategies [8,19]. According to Dimante et al. [29], this concept of the economy will require creative thinking, awareness, responsibility, and communication skills. In this context, it is clear that these leaders will need to create and know the processes of human change within the

organization. The most interesting, however, is what Blass and Hayward [30] have found that these leaders will need to be flexible in their approach and work in a network. Thus, there is concern that these skills will need to be very well developed because, as mentioned by the author, it compromises different capacities in different jobs and situations.

In theory, Ambekar et al. [22] developed a model of low-carbon adoption in organizations. This model can evaluate individual characteristics such as leadership in the company's perception. The model can be used by organizations that wish to implement the Circular Economy concepts. In this way, it is possible to understand its suitability based on ecological issues, or, in this case, to evaluate the necessary changes to meet the Circular Economy demand.

### 1.2.4 Team development

Team development is one of the factors that encompass GP. In the Circular Economy, Lee and Chang [33] confirmed that teams play a crucial role in their fusion within an organization and positively impact employee job satisfaction. Prajogo et al. [34] recommend a cross-functional team in designing green products, who consider cross-functional teams composed of different functions within a company, including engineers, and marketing professionals, among others. This team is called the green team by Jabbour [28] and Sroufe [35], as different mindsets approach green thinking equally and produce a better and faster design process.

Viani et al. [36] highlight the importance of communication between the entire team of an organization with circular processes and businesses. In their case studies the authors concluded that the lack of communication between the purchasing and waste management teams undermined the lifetime cost of materials.

Prajogo et al. [34] also believe that this involvement and communication between teams need to expand from only within the company (intraorganizational) to the supply chain (inter-organizational).

Daily et al. [27] recommend green empowerment for employees to have autonomy in environmental decision-making. Renwick et al. [37] recommend implementing a reward system for environmental performance, valuing employees who contribute most to sustainability.

Both recommendations can be adopted in organizations with the concepts of the Circular Economy, as they encourage employees to practice sustainable attitudes, which can generate value for the business.

Furthermore, coherent recruitment of members is necessary to form teams suitable for the Circular Economy. Recruitment ensures that the right employee works in the right place [38]. In companies with sustainable concepts, recruitment seeks talented skills in environmental aspects [39].

## 2. METHODOLOGY

As presented in the first section, the objective of this research is to systematize the best practices of the Circular Economy; for this, the following steps were developed: 1) a theoretical approach to people management practices in the general context, which resulted in the identification of NP 4427:2018; 2) A theoretical approach to people management practices in the context of the Circular Economy, based on key terms to represent the people management practices in CE described in Section 2.; 3) therefore, a subjective analysis of the interpretation was performed to develop a relationship between EC practices and NP 4427: 2018. The relationship and construction of each practice are explained below. This study defined the standard practices for circular people management based on a literature review in the Web of Science, Science Direct, and Proquest databases. For the present study, all the requirements of the standard were evaluated and compared with the results of the

authors of the systematic review and are exposed in the section. The result of this step is the first version of the Circular People Management Practices Guide.

## 3. RESULTS AND DISCUSSION

Considering that the circular economy is characterized as sustainable development, it is justified that sustainable development is the main characteristic that human resource management oriented toward the Circular Economy should pay attention to.

Another information obtained in this study is that 20% of the selected articles address two contents, showing that the need for people management oriented towards the circular economy is significant. The general literature highlights two key skills for the Circular Economy: sustainable material usage and environmental/ecological economics [40]. It mainly focuses on Human Resource as part of Operational Business skills, but it does not provide any specific competencies or knowledge [10]. Therefore, this study aims to gain a thorough understanding of the actual practices that Human Resources Management should prioritize in order to enhance training and successfully transition to the Circular Economy.

The relationship of practices with the requirements of NP 4427: 2018 is presented below, divided into four dimensions: Organizational Culture (Table 1); People Development (Table 2); Leadership (Table 3); and Team Development (Table 4).

**Table 1. Practices of the circular organizational culture dimension**

Practices of the circular human resources management of the organizational culture dimension		
Practice	Author	Requirements of the NP 4427: 2018 Standard
<b>Purpose</b>		
The company's mission complies with the principles of the Circular Economy	The company's mission must include social responsibility to bring the company's values and strategies to all members [19]	Ensure the fulfillment of the mission associated with the strategic vision assumed and necessary for current activities (plan). Demonstrate your ability to attract, develop, and retain the people needed to fulfill your mission. Analyze and determine internal and external issues. Issues may include positive or negative factors or conditions likely to affect the organization's people management, considering its mission.

The company's vision is under the principles of the Circular Economy	It takes a vision of the expansion and necessary relationship with other cultures and thus creates a culture coherent with the currently globalized market [21]	Ensure the fulfillment of the mission associated with the assumed strategic vision and necessary for current activities (plan).
The company's values are under the principles of the Circular Economy	Organizations are trying to promote sustainability in their business; they are trying to change the values that their members are used to [23]	A formal code establishes general ethical objectives the organization intends to achieve and pursue, in line with its vision, strategy, and objectives, also considering the different stakeholders. It consists of the organization's system of values and commitments, which people must assume as members of the organization. Analyze and determine internal and external issues. Understanding the internal context can be facilitated by considering issues related to internal regulation, values, culture, communication, organizational knowledge, social and labor relations, the content and working conditions, skills, well-being and health of people, and the performance of people and the organization.
<b>Politics</b>		
The company guarantees that the people management policy is known to all	A green culture with institutional policies and support mechanisms [20]	The objectives of the people management system should: a) be consistent with the people management policy
The company guarantees that the people management policy is known to all	A green culture, with institutional policies and support mechanisms [20]	
<b>Strategic Planning</b>		
The company is clear about the external factors that can affect the results of the implementation of human resources management oriented to the Circular Economy	Leaders have the responsibility, among many others, to have knowledge on issues relevant to society and to be aware of external factors such as environmental and political issues, among others [30]	Analyze and determine external and internal issues that are relevant to the purpose and strategic direction, and that affect the ability to achieve the intended result(s) with your people management system (4.1)
The company is clear about the internal factors that can affect the results of the implementation of human resources management oriented to the Circular Economy	It is necessary to evaluate internal and external factors as means for structuring to have a consolidated organizational culture (SCHEIN, 2004)	Combination of internal and external factors that can influence an organization's approach, development, and achievement of its objectives

<p>The company provides all the necessary resources for human resources to be prepared for the Circular Economy</p>	<p>Knowledge of resources that can help and even facilitate the implementation of the Circular Economy such as Green Information Technology, which guarantees the environmental performance of organizations through the sustainable production, consumption, use, and disposal of Information Technology devices [20].</p>	<p>d) determine the resources needed for these processes and ensure their availability.</p>
<p>The company's strategic plan complies with the principles of the Circular Economy</p>	<p>Companies like these business models encourage ecological design, strategic decision-making on environmental issues and cleaner production actions (PARK, SARKIS, and WU, 2010; GENG et al, 2012).</p>	<p>Formal code that establishes general ethical objectives that the organization intends to achieve and pursue, internally and externally, in line with its vision, strategy, and objectives, and considering the different stakeholders. It consists of the organization's system of values and commitments, which must be assumed by people as members of the organization.</p>
<p>The company's strategic plan complies with the principles of the Circular Economy DECISION MAKING</p>	<p>Companies like these business models encourage ecological design, strategic decision-making on environmental issues and cleaner production actions (PARK, SARKIS, and WU, 2010; GENG et al, 2012).</p>	<p>The organization shall analyze and determine external and internal issues that are relevant to its purpose and strategic direction, affecting its ability to achieve the intended result(s) with its people management system.</p>
<p>The company's strategic plan complies with the principles of the circular economy Cleaner Production</p>	<p>Companies like these business models encourage ecological design, strategic decision-making on environmental issues, and cleaner production actions (PARK, SARKIS, and WU, 2010; GENG et al, 2012).</p>	
<p>The company has its long-term goals related to the circular economy</p>	<p>If there is no understanding of the Circular Economy, the positive effects of the Circular Economy on the company's performance will not be achieved [25]</p>	<p>Monitor and measure processes against the intended objectives and results (check)  Formal code that establishes general ethical objectives that the organization intends to achieve and pursue, internally and externally, in line with its vision, strategy, and objectives, and considering the different stakeholders.  People management includes the establishment of policies and objectives, and the processes and activities to achieve these objectives.</p>
<p><b>Mentality</b></p>		

<p><b>GREEN INNOVATION</b> The company's organizational culture is conducive to a circular human resource management model</p>	<p>Creating a service culture [18] A culture of green innovation, which promotes creativity and design thinking while meeting the routine procedures of a company [19]</p>	<p>People in the organization must be aware of the following: a) the people management policy b) organizational culture and structure c) the objectives of the people management system d) its contribution to the effectiveness of the people management system, including the benefits of a better system performance e) the respective functions, responsibilities, and proper authorities f) the implications of non-compliance with the requirements of the people management system.</p>
<p>The company's organizational culture has green innovation thinking</p>	<p>A green culture of innovation, which promotes creativity and design thinking while meeting the routine procedures of a company [19]</p>	<p>People in the organization must be aware of: a) the people management policy b) organizational culture and structure c) the objectives of the people management system d) its contribution to the effectiveness of the people management system, including the benefits of a better performance of the system e) the respective functions, responsibilities, and proper authorities f) the implications of non-compliance with the requirements of the people management system</p>
<p>The company's organizational culture enables creative design thinking</p>	<p>A culture of green innovation, which promotes creativity and design thinking, while meeting the routine procedures of a company [19]</p>	<p>Organizational culture Top management must identify, implement, and maintain values and practices that: a) reflect the organization's identity; b) influence the conduct and behavior of people and the organization; c) be an instrument of motivation and commitment of people with their work and with the organization. People in the organization must be aware of the organizational culture</p>
<p>The company has a methodology for welcoming and integrating people who engage in circular attitudes</p>	<p>Involvement and communication between teams need to expand from just within the company (intraorganizational) to the supply chain (interorganizational) [34].</p>	<p>Maintain a methodology for welcoming and integrating people at the service of the organization, which ensures communication about the context, organizational and relational structure; awareness; the communication of responsibilities and authorities associated with the activities that the person will perform; adaptation to the job and function to be performed. (8.6)</p>
<p>The company has a reward system for the performance of Circular Economy practices, valuing employees who contribute the most to making the Circular Economy happen.</p>	<p>Implementation of a reward system for environmental performance, valuing employees who contribute most to sustainability [37].</p>	<p>Define a management methodology and career development (8.9)</p>

**Table 2. Practices of the circular people development dimension**

<b>Circular people management practices of the dimension people development</b>		
<b>Practice</b>	<b>Author</b>	<b>Requirements of the NP 4427: 2018 Standard</b>
<b>Motivation</b>		
The company enables green empowerment for employees so that they have autonomy in environmental decision-making	Green empowerment for employees, as this way they will have autonomy to make environmental decisions [27].	Implement a career management and development methodology (8.9)
Employees are satisfied with the company culture and their job expectations	One of the goals of people management is to increase employee self-actualization and satisfaction (CHIAVENATO, 2014)	The analysis results should be used to assess the following: a) people's satisfaction b) the performance of people c) compliance with legal and regulatory requirements d) the performance and effectiveness of the people management system e) whether the plan has been implemented effectively f) the effectiveness of actions taken to address risks and opportunities g) the performance of external suppliers h) the need for improvement in the people management system. (9.1.1)
The satisfaction of employees who receive training is evaluated	One of the goals of people management is to increase employee self-actualization and satisfaction (CHIAVENATO, 2014)	Ensuring that these people are competent based on adequate education, training, or experience (7.2)  NOTE: Whenever possible, the methodologies and instruments to be used in the assessment of training may focus on a) assessment of trainees' satisfaction with the training attended; b) assessment of the learning carried out (to what extent the trainees acquired/developed the knowledge and skills that achieve the objectives defined in the training program); c) evaluation of the application of learning in the work context, that is, the impact that training had on people's performance; d) evaluation of the training results for the organization, that is, the impact that the training had on the organization's performance; e) evaluation of the return on investment (ROI) of training (8.8.1)
<b>Training and Development</b>		
The company assesses the level of significant qualification on environmental issues from all hierarchical levels	All hierarchical levels need to be evaluated if they have a significant level of qualification on environmental issues and thus, if necessary, receive	Determine the necessary skills of the person(s) who ensure(s) the implementation, monitoring, and improvement of the people management system and respective processes.

	essential training [27]	Ensuring that these people are competent based on adequate education, training, or experience (7.2)
The company provides training to develop the competencies identified as necessary	Training provides increased employee motivation and task commitment, thus improving the organization's performance on sustainable issues [24]	Define the processes that allow the development of people's personal and professional skills (8.8)
The company provides training that provides an understanding of the Circular Economy and its positive effects on company performance.	Competences that future professionals who will work in circular businesses must possess: <ul style="list-style-type: none"> <li>• Systems thinking</li> <li>• Understanding of LCA</li> <li>• Eco-design principles</li> <li>• Multidisciplinary knowledge</li> <li>• Business ethics</li> <li>• Negotiation skills</li> </ul> Entrepreneurship principles [24]	Ensuring that these people are competent based on adequate education, training, or experience (7.2)
The company provides training that increases employee motivation for the Circular Economy	Training provides increased employee motivation and task commitment, thus improving the organization's performance on sustainable issues [24]	Top management must identify, implement, and maintain values and practices that: <p>(...)</p> c) be an instrument of peoples 'motivation and commitment to their work and with the organization. (5.2.2)
The company provides training that increases employee performance for the principles of the Circular Economy	By providing training to employees, GP contributes to achieving the goals of green sustainability within the organization [24].	Ensuring that the people management system can achieve the intended result(s)
The company provides training in ecological activities such as disposal, recycling, waste classification, and environmental management	Investment in education in ecological activities within the organization, such as disposal, recycling, waste classification, and environmental management [26,6].	The recognized ability to mobilize knowledge, skills, and attitudes to achieve results in work, professional development, education, and personal development contexts
The company's people management is constantly improving so that the skills of professionals working in the Circular Economy are qualified. There is continuous improvement in career development providing rewards and freedom for employees to practice the Circular Economy	Green empowerment for employees. This way, they will have the autonomy to make environmental decisions (DAILY, BISHOP, and MASSOUD, 2012).	Implement a career management and development methodology (8.9)

<b>Selection and Recruitment</b>		
The company knows who its key employees are for CE implementation to take place	Teams play a key role in their fusion within an organization, providing a positive impact on employee job satisfaction [33].	To determine a) stakeholders that are relevant to the people management system, and b) the requirements of these interested parties that are relevant to the people management system (4.2)
The company has a recruitment and selection process based on the skills needed for the Circular Economy Economia Circular	In companies with sustainable concepts, recruitment seeks talented skills in environmental aspects [39]	Define: a methodology that defines the process of admission of people, complying with legal requirements (8.4)

**Table 3. Practices of the circular leadership dimension**

<b>Circular people management practices in the leadership dimension</b>		
<b>Practices</b>	<b>Author</b>	<b>NP 4427:2018</b>
<b>Competence</b>		
The company has leaders with a visionary profile	Visionary leadership is an interesting profile, as it characterizes the search for expansion as an incentive and supporter [32]	Top management must identify, implement, and maintain values and practices that: a) reflect the identity of the organization b) influence the conduct and behavior of people and the organization c) be an instrument of motivation and commitment of people with their work and with the organization. (5.2.2) The organization must: a) define the responsibilities and authorities for all functions of the organization b) define the requirements for the performance of these functions in accordance with the responsibilities and authorities assigned c) establish its organizational and relational structure to satisfy the needs required by its activity and its context. (7.2.2)
Does the company assess the level of significant qualifications on environmental issues of its leaders?	Leaders have the responsibility, among many others, to have knowledge of matters relevant to society and to be aware of external factors such as environmental and political issues, among others [30]	Take steps to acquire the necessary skills and assess the effectiveness of the actions taken
Do leaders have convergent and divergent thinking?	Awan, Sroufe, and Kraslaw [19] found a leadership that uses convergent and divergent ideas for innovative ideas on environmental issues in the organization	Top management must demonstrate leadership and commitment to the people management system by committing, guiding, and supporting people to contribute to the effectiveness of the people management system.
Do leaders have knowledge relevant to	Leaders have the responsibility, among	People in the organization should be aware of their contribution to the effectiveness of

society?	many, to have knowledge in matters relevant to society, and to be aware of external factors such as environmental issues, and political factors, among others [30]	the people management system, including the benefits of better system performance.
<b>Engagement</b>		
The company has leaders who encourage and support the Circular Economy	Visionary leadership is an interesting profile, as it characterizes the search for expansion as an incentive and supporter [32]	Top management must identify, implement, and maintain values and practices that: a) reflect the identity of the organization b) influence the conduct and behavior of people and the organization c) be an instrument of motivation and commitment of people with their work and with the organization. (5.2.2) The organization must: a) define the responsibilities and authorities for all functions of the organization b) define the requirements for the performance of these functions under the responsibilities and authorities assigned c) establish its organizational and relational structure to satisfy the needs required by its activity and its context (7.2.2)
Do leaders engage in communication and engagement across all circular processes?		Top management must identify, implement, and maintain values and practices instrumental to peoples' motivation and commitment to their work and the organization.

**Table 4. Practices of the team development dimension**

<b>Circular people management practices of the team development dimension</b>		
<b>Practices</b>	<b>Authors</b>	<b>NP 4427:2018</b>
<b>Communication</b>		
Does the company have communication and engagement that engage circular business and processes?	Involvement and communication between teams need to expand from just within the company (intraorganizational) to the supply chain (interorganizational) [34]	
Is there communication from the teams contributing to the expansion of Circular Economy practices?	Leadership that encourages and supports the expansion of the Circular Economy [32]	Communication The people management policy and culture must be a) made available and maintained as documented information; b) communicated and applied within the organization; c) made available to interested parties, as appropriate.
Are the teams aware and agree that communication between everyone is important vital for effectively adopting the Circular Economy?	Teams play a key role in their fusion within an organization, providing a positive impact on employee job satisfaction [33]. Communication between the entire team of an organization with circular processes and businesses	Define a methodology for welcoming and integrating people at the service of the organization, which guarantees communication about the context, organizational and relational structure;

<p>There is communication between intraorganizational teams Is there communication between inter-organizational (supply chain) teams?</p>	<p>is important [36] Communication between the entire team of an organization with circular processes and businesses [36] Communication between teams needs to expand from just within the company (intra-organizational) to the supply chain (inter-organizational) [34]</p>	<p>awareness; the communication of responsibilities and authorities associated with the activities that the person will perform; adaptation to the job and function to be performed. (8.6)</p>
<p>Is there a communication methodology between all teams?</p>	<p>Communication between the entire team of an organization with circular processes and businesses [36] Communication between the entire team of an organization with circular processes and businesses is important [36]</p>	
<p><b>Engagement</b></p>		
<p>Does the company have a Green Cross-Functional Team?</p>	<p>Green cross-functional team [6,34,35]</p>	<p>To determine a) stakeholders that are relevant to the people management system, and b) the requirements of these interested parties that are relevant to the people management system (4.2)</p>
<p>The company allows green empowerment for teams in such a way that they have the autonomy to make environmental decisions</p>	<p>Green empowerment for employees, because in this way, they will have the autonomy to make environmental decisions [27].</p>	<p>Implement a career management and development methodology (8.9)</p>

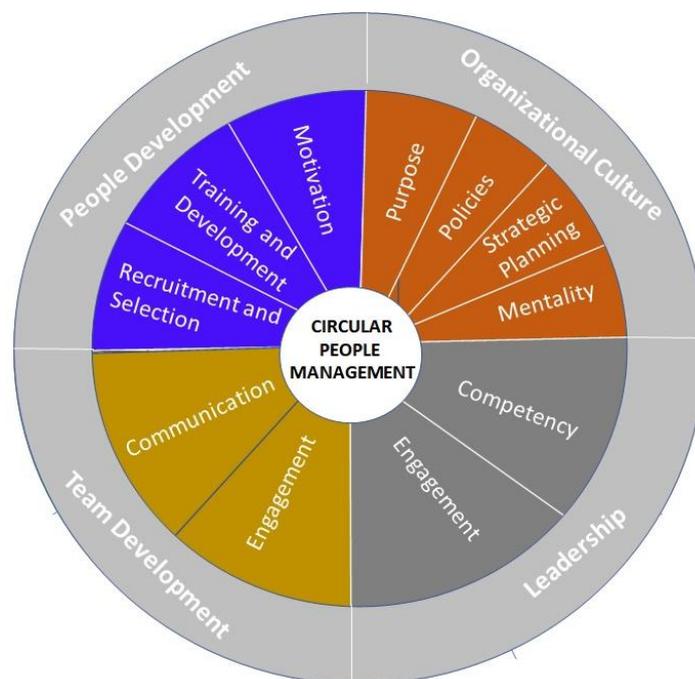


Fig. 3. Dimensions and sub-dimensions of people management practices

As stated by some authors working on sustainability themes, depicting successful practices to be implemented in industry is of utmost importance to encourage application of the existing body of knowledge regarding systemic transformations for industrial sustainability [41,42]. Thirty-one practices were identified in this study. These practices were classified into the four dimensions of the conceptual model: organizational culture,

people development, leadership, and team development. Then, they were systematized into sub-dimensions according to their standards and theoretical categories, as shown in Fig. 3.

The Organizational Culture dimension has the following sub-dimensions: Purpose; Policy; Strategic planning; and Mentality. The People Development dimension has the following sub-dimensions: Motivation; Training and development; and Selection and Recruitment. In

**Table 5. Guide to people management practices oriented to the circular economy**

<b>Code</b>	<b>Practice Description</b>
<b>Organizational Culture</b>	
<b>PCO.1</b>	The mission complies with the principles of the Circular Economy
<b>PCO.2</b>	The vision is under the principles of the Circular Economy
<b>PCO.3</b>	The values are under the principles of the Circular Economy
<b>PCO.4</b>	Have institutional policies oriented to the Circular Economy
<b>PCO.5</b>	Have a support mechanism for the Circular Economy
<b>PCO.6</b>	Have external factors that can affect the results of a circular personnel management
<b>PCO.7</b>	Have internal factors that can affect the results of a circular personnel management
<b>PCO.8</b>	Have a green culture of innovative thinking
<b>PCO.9</b>	Have an organizational culture that provides creative design thinking
<b>PCO.10</b>	Have a methodology for welcoming and integrating people who engage in circular attitudes
<b>People Development</b>	
<b>PDP.1</b>	Have satisfied employees
<b>PDP.2</b>	Assess the level of significant qualification on environmental issues of the employees
<b>PDP.3</b>	Develop skills identified as necessary for the effectiveness of the Circular Economy in the employees
<b>PDP.4</b>	Provide training that brings an understanding of the Circular Economy and its positive effects on company performance
<b>PDP.5</b>	Provide training that brings an increase on the motivation of the employees to adopt the principles of the Circular Economy
<b>PDP.6</b>	Provide training in ecological activities such as disposal, recycling, waste classification, and environmental management
<b>PDP.7</b>	Have a reward system for the performance of Circular Economy practices
<b>PDP.8</b>	Have a recruitment and selection process based on the skills necessary for the Circular Economy
<b>PDP.9</b>	Have a recruitment and selection process that pays attention to recruiting talent in environmental aspects
<b>Leadership</b>	
<b>PDL.1</b>	Have visionary leaders
<b>PDL.2</b>	Assess the level of significant qualification on environmental issues of the employees
<b>PDL.3</b>	Have leaders with convergent and divergent thinking
<b>PDL.4</b>	Have leaders with knowledge relevant to society
<b>PDL.5</b>	Have leaders who encourage and support the Circular Economy
<b>PDL.6</b>	Have leaders who engage in communication and involvement in all circular processes
<b>Team Development</b>	
<b>PDE.1</b>	Have communication and involvement that engages circular business processes
<b>PDE.2</b>	Have communication between team members to expand the principles of the Circular Economy
<b>PDE.3</b>	Have interorganizational communication (same company)
<b>PDE.4</b>	Have intraorganizational communication (at the supply chain)
<b>PDE.5</b>	Have green multifunctional teams
<b>PDE.6</b>	Allow green empowerment of teams in such a way that They have autonomy for environmental decision-making

the Leadership dimension, there are the sub-dimensions: Competence and Engagement. In the Team Development dimension, the sub-dimensions are Communication and Engagement. Thus, finally, the People Management Practices Guide oriented to the Circular Economy is structured, as shown in Table 5.

The People Management Practices Guide oriented to the Circular Economy is expected to be of importance to the companies transitioning to the Circular Economy business model. It complements previous studies that were mainly focused on technical skills and capabilities [43,44].

#### 4. CONCLUSION

This research aimed to systematize the best practices of Circular Economy in people management, considering a theoretical approach. Based on this systematization, the leading practices that could best contribute to the Circular Economy context are divided into four dimensions: Organizational Culture, People Development, Leadership, and Team Development. The development of this research can contribute to the management of people in organizations transitioning to a Circular Economy. In addition, this article can academically contribute, since it addresses people management in the Circular Economy context since they are important issues to be considered by organizations. The present work can be considered a theoretical contribution, as it presents a conceptual model based on the literature review. It is highly recommended that the companies transitioning to the Circular Economy assess this model to have a helpful tool for succeeding in this very difficult task.

A limitation of this article is that subjective analysis is performed only by the authors. Another limitation is the validation by experts in the field of the defined practices. For future research, it is planned to carry out a field survey with experts to improve the validation of practices. It is also intended to develop a method for assessing people management maturity based on the practices found in this research.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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