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# FORUM

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## ORGANIZATIONAL VALUES AS ENABLERS FOR THE CIRCULAR ECONOMY AND SUSTAINABILITY

*Valores organizacionais como suporte para a economia circular e a sustentabilidade*

*Valores organizativos como apoyo para la economía circular y sostenibilidad*

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### ABSTRACT

The transition towards the circular economy (CE) requires that organizational values be examined in more depth and understood more fully, which can encourage innovation and sustainable attitudes. The majority of the studies on this matter, however, only address the technical aspects of the transition to a CE. The aim of this paper was to identify and analyze those organizational values that are essential for sustaining a culture that incorporates concepts of circularity and sustainability. Using a multi-method approach, we identified a list of 29 circular values and proposed a definition for each one. The values identified were discussed with regard to their importance in achieving sustainability. By way of a case study we also exemplified the adoption of circular values and how the specific organization we studied is nurturing those values. This seminal study enriches discussion of the importance of soft factors for the transition to a CE. It also embraces the relevance of human resource management in organizations for boosting sustainability.

**Keywords:** circular economy, organizational culture, organizational values, sustainability, innovation.

### RESUMO

A transição para a Economia Circular (EC) requer o aprofundamento e a compreensão dos valores organizacionais, os quais podem estimular e encorajar inovações e atitudes sustentáveis. Entretanto, a maioria dos estudos aborda majoritariamente aspectos técnicos para essa transição. Portanto, o objetivo deste artigo foi identificar e analisar valores organizacionais essenciais para sustentar uma cultura que incorpore conceitos de circularidade e sustentabilidade. A partir de uma abordagem multimétodo, identificamos 29 valores circulares e propomos a definição de cada um deles. Os valores identificados foram discutidos em relação à sua importância para alavancar a sustentabilidade. Ademais, exemplificamos, por meio de um estudo de caso, a adoção de valores circulares e como essa organização específica está nutrindo esses valores. Este estudo seminal enriquece a discussão sobre a importância de soft skills para a transição para a EC. Além disso, ele fomenta a relevância da gestão de recursos humanos nas organizações para impulsionar a sustentabilidade.

**Palavras-chave:** economia circular, cultura organizacional, valores organizacionais, sustentabilidade, inovação.

### RESUMEN

La transición hacia una economía circular (EC) requiere una profundización y comprensión de los valores organizativos, que pueden estimular y fomentar las innovaciones y actitudes sostenibles. Sin embargo, la mayoría de los estudios abordan los aspectos técnicos de esta transición. Por lo tanto, el objetivo de este artículo fue identificar y analizar los valores organizativos que son esenciales para sostener una cultura que incorpore circularidad y sostenibilidad. Utilizando un enfoque multimétodo, identificamos 29 valores circulares y propusimos una definición para cada uno de ellos. Los valores identificados se debatieron en relación con su importancia para la sostenibilidad. Además, ejemplificamos con un estudio de caso la adopción de valores circulares y cómo esa organización está desarrollando esos valores. Este estudio seminal enriquece el debate sobre la importancia de soft skills para la transición a la EC. Además, fomenta la relevancia de la gestión de los recursos humanos para impulsar la sostenibilidad.

**Palabras clave:** economía circular, cultura organizativa, valores organizativos, sostenibilidad, innovación.

## INTRODUCTION

Human activity worldwide has been causing different social and environmental problems and increasing the pressure from consumers, society, governments, and the market for more sustainable businesses, a situation that is directly affecting the strategic orientation of organizations. Since the linear “take-make-dispose” economic model is facing worsening challenges (Ellen MacArthur Foundation [EMF], 2012), the circular economy has been gaining the attention of organizations. CE is a viable way of redefining the concept of economic growth, with a focus on ensuring greater effectiveness in the use and management of resources, environmental quality, inclusiveness, and the well-being of populations (Cotec, 2016). It is an economic model based on shared values and a long-term systemic vision (Confederação Nacional da Indústria [CNI], 2018). It can create sustainable value, since its implementation enables adverse impacts to be minimized while including new ways of doing business (Buren, Demmers, Heijden, & Witlox, 2016). It also has a direct relationship with sustainable development and can contribute to the achievement of the sustainable development goals (SDGs) that were established by the United Nations (UN) (Schroeder, Anggraeni, & Weber, 2018).

Most definitions of CE have in common the optimization of the value of products, components and materials (Bocken, Pauw, Bakker, & Grinton, 2016; EMF, 2012; Prieto-Sandoval, Jaca, & Ormazabal, 2018), which is reflected in process changes. The transition towards circularity, however, requires more radical changes and innovations in business models and ecosystems for it to be effective, since the CE operates at the micro (products, enterprises, and consumers), meso (industrial ecoparks) and macro (cities, regions, nations) levels (Kirchherr, Reike, & Hekkert, 2017). The implementation of innovations in business models for a CE requires simultaneous changes in structures, processes, technologies, mindsets, culture and ecosystems (Bocken, Schuit, & Kraaijenhagen, 2018; Konietzko, Bocken, & Hultink, 2020; Pieroni, McAloone, & Pigosso, 2019); that is, in order to develop sustainable and circular business models, organizations must reinvent themselves and adapt different aspects, including proposing a culture that incorporates circular and sustainable concepts and strategies (Gue, Promentilla, Tan, & Ubando, 2020).

Organizational culture (OC) is a key element for supporting changes for achieving a CE, since corporate culture transmits a sense of identity and, through beliefs, values and norms, determines how to do business (O'Donnel & Boyle, 2008). OC can be defined as:

“The pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems. (Schein, 1984, p. 3).”

In order to achieve the organizational changes required for a CE, it is important to consider not only the different levels of the organization (individuals, groups and the organization as a whole) (Lloria & Moreno-Luzon, 2014), but also the interrelationships between individuals and

their capacity to adapt to their particular environment. Organizational changes depend on the acceptability of individuals and will be more effective if perceived as being central to the organization's survival (Buchanan et al., 2005; Dawson, 1994).

Organizational values, as the “heart of the culture of an organization” (Posner, 2010, p. 536), are generally the basis for integrating essential performance and operational requirements into a results-oriented structure (Lagrosen & Lagrosen, 2019) and, therefore, they must be clearly communicated and shared. Furthermore, these values can guide innovation, since they influence organizational behavior and constitute motivational goals (Miguel & Teixeira, 2009).

Several authors have expressed the importance of adapting the OC to implement the CE (Bashir & Verma, 2019; Bustinza, Gomes, Vendrell-Herrero, & Tarba, 2018; Isensee, Teuteberg, Griese, & Topi, 2020). Norms, values, visions, concepts, tools, instruments, and indicators should be checked and adjusted in order to enable the CE (Korhonen, Honkasalo, & Seppälä, 2018). Despite the importance of cultural aspects in the transition towards a CE and all the efforts required to develop the CE literature, the OC and the values that support the transition to a CE are little explored (Jabbour et al., 2019; Korhonen, Nuur, Feldmann, & Birkie, 2018). There are just two studies in literature that clearly address discussions about a CE-oriented culture (Bertassini, Ometto, Severengiz, & Gerolamo, 2021) and circular organizational values (Barboza, Bertassini, Gerolamo, & Ometto, 2020).

Therefore, considering the scarcity of studies in the field and the importance of understanding the values that support an OC that addresses the specifics of the CE, this paper aims to: (i) identify those organizational values that support the development of a CE-oriented culture; (ii) discuss the importance of identifying circular organizational values for sustainable development; and (iii) exemplify, by way of a case study, the adoption of circular values and how a specific organization nurtures those values. This is done to encourage organizations to move towards a CE based on aspects inherent in the individual and collective unconscious.

## METHODOLOGY

This research adopts a multi-method procedure (i.e., “research in which the investigator collects and analyses data, integrates the findings and draws inferences using both qualitative and quantitative approaches” (Tashakkori & Creswell, 2007, p. 3)) based on the phases proposed by Bardin (2011) in his content analysis theory. Content analysis comprises a set of analysis techniques to obtain, by systematic and objective content description procedures, those indicators that allow knowledge to be inferred. According to Duncan (1989), the content analysis method “lies at the crossroads of qualitative and quantitative methods” (p. 27); therefore, it enables different techniques to be combined.

Combining quantitative and qualitative methods can boost the strengths and perspectives of each method, especially with regard to an unknown phenomenon (Johnson & Onquegbuzie, 2004; O'Cathain, Murphy, & Nicholl, 2008; Östlund, Kidd, Wengström, & Rowa-Dewar, 2011), and provide a better approach and the potential to widen the repertoire of traditionally-used research

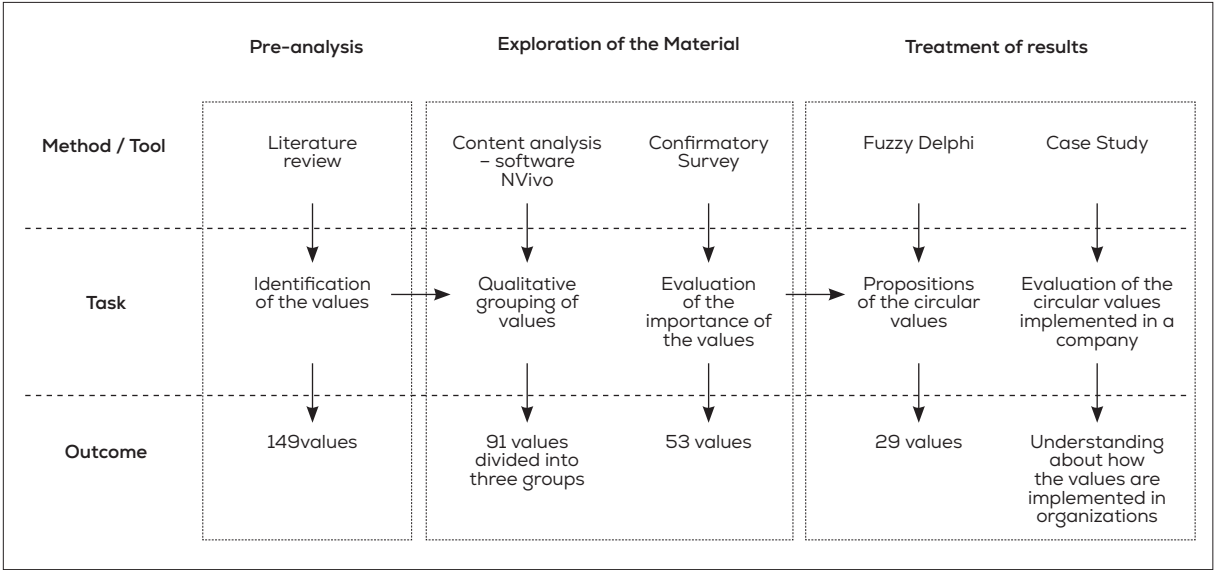
methods (Creswell & Clark, 2007; Molina-Azorin, 2016). In this study, this combination plays an important role, since we are dealing with a field that is complex and with regard to which there is limited literature.

This study evaluated the topic in diverse dimensions in order to increase the reliability of the results, and to encompass the benefits outlined by Greene, Caracelli and Graham (1989) and Molina-Azorin (2016): complementarity (integrating the results/analysis of one method with the findings from another); development (the contribution of the results of one method towards helping with the development of another); and expansion (extending the breadth and scope of research using different methods).

The qualitative data were collected before the quantitative data in this study in order to first explore and investigate the research problem, and then to analyze it from a quantitative perspective that is amenable to study (Molina-Azorin, 2016). In order to ensure the validity of the answers their theoretical and qualitative content was consolidated following evaluation by experts in the subject, who quantitatively analyzed the data using methods that are recognized in the literature for the application of questionnaires.

The phases followed in this study are presented in Figure 1 and described in detail in the next subsections.

Figure 1. Outline of the methodology applied in this study



Pre-analysis

The procedures adopted in this phase were well-defined to cover the initial contact with the literature for formulating the hypotheses and indicators that contribute to the study’s development (Câmara, 2013). Due to the novelty of the theme, a systematic review of literature was unsuitable, so the authors opted for an exploratory review that could result in more information and better results.

We consulted company reports, literature cases and the institutional websites of organizations that already adopt sustainable and circular practices and mindsets, such as members of the Ellen MacArthur Foundation’s Circular Economy 100 Program (established to enable organizations to develop new opportunities and rapidly achieve their ambitions in the CE), and those recognized by The Circulars (the world’s premier CE awards). We also searched for organizational values in academic literature related to the CE, such as sustainability, innovation, change management, recycling, waste management, renewable energy, eco-design and Industry 4.0. As a result, we identified and defined 149 preliminary organizational values that could be related to the CE.

Exploration of the material

In this phase the data were systematically transformed and aggregated into categorization units (Santos, 2012) in order to allow for interpretations and inferences to be developed. We used the NVivo software to code the data qualitatively and a confirmatory survey involving CE experts.

Application of the NVivo Software

NVivo was used to analyze and filter the organizational values we identified. This software is used for analyzing qualitative information, which enables textual data to be organized and categorized by analyzing words, sentences and/or paragraphs (Silva, Figueiredo, & Silva, 2015).

The definitions of the 149 organizational values previously identified were used as input. Using the NVivo results and after thorough analysis, the values were grouped by similarity of definition and a preliminary categorization was proposed according to the relationship of the values with the process of the transition towards the CE and with circular principles:

Group 1: Values that are basic to any company, whether they target the CE or not.

Group 2: Values related to the transition process towards the CE, that is, those that are essential for proposing any kind of change and/or innovation.

Group 3: Values related to the future state of a circular company, that is, those that are essential for supporting a circular organizational culture.

This preliminary treatment of the data enabled us to reduce the number of identified organizational values to 91.



Confirmatory survey

A confirmatory survey was carried out to validate the grouping of the organizational values. According to [Forza \(2002\)](#), a confirmatory survey aims to test the appropriateness of the content, hypotheses, and concepts that are developed in relation to certain phenomenon.

The survey was developed on the Google Forms platform and, in the period between May and August 2020 (a long period because of the COVID-19 pandemic), sent to theoretical and practical experts in the CE and sustainability fields. To identify the target audience, we looked for contacts in scientific articles related to the CE, company reports, social media, university research groups, and others. We also used the “snowballing” method, which is a research technique that is recommended when the population cannot be strictly delimited or detailed, thus aiming to identify other individuals of interest for consultation ([Dragan & Isaic-Maniu, 2013](#)). This method includes the researchers identifying individuals for interview, who, in turn, must indicate/recommend other interviewees who can contribute to the research.

Survey respondents were asked to classify the 91 values on a Likert five-point scale (from 0 to 4) in relation to the importance of the value for the transition to the CE, based on BSI 8001 (0= Unimportant; 1= Not very important; 2= Moderately important; 3= Important; 4= Very important) - See Appendix 1. A total of 60 valid responses were collected. The demographic data are shown in Table 1. The sample of respondents was sufficient to achieve the aim of its application because a very specific group of experts was chosen to answer the questionnaire.

The data were statistically treated using the IBM SPSS Statistics software for carrying out statistical, predictive, descriptive, prescriptive, and regression analyses. We also performed frequency and descriptive statistical analyses (mean, median, mode, error deviation, variance, sum and percentiles).

In addition to descriptive statistics tools, the Binomial Hypothesis Test was applied according to [Gosavi \(2015\)](#). When applying the Likert scale, it is often interesting to determine how many respondents are on each of the sides, or whether there was a statistical tie. The Binomial Test facilitates this analysis by providing a test of statistical significance. To apply this test, for each organizational value evaluated by the respondents, we combined the answers at Levels 3 and 4 into one group (Group 1) and the Level 0 and 1 answers into another group (Group 2). Level 2 was considered “neutral”. The significance level ( $\alpha$ ) we adopted was 0.05.

Considering  $p_i$  to be the estimated proportion of the population belonging to Group  $i$ , and  $L_i$  is the number in the  $i$ -th group ([Gosavi, 2015](#)), in this study we assumed that  $L1 \geq L2$ . Taking these facts into consideration, we tested two hypotheses to evaluate the disposition of the survey data:

$H0: p1 \leq p2$  (null hypothesis).

$H1: p1 > p2$ .

Table 1. Distribution of the demographic profiles

Demographic Group	Variables	Frequency n=60	%
Gender	Female	28	46.7
	Male	32	53.3
Age	24-30 years old	17	28.3
	31-37 years old	12	20.0
	38-44 years old	13	21.7
	45-51 years old	9	15.0
	> 51 years old	9	15.0
Location	Brazil	40	66.6
	Denmark	4	6.6
	Italy	3	5.0
	United Kingdom	3	5.0
	Colombia	2	3.3
	The Netherlands	2	3.3
	Albania	1	1.7
	Australia	1	1.7
	France	1	1.7
	Lebanon	1	1.7
	Spain	1	1.7
	Taiwan	1	1.7
Workplace	Educational Institution	54	90.0
	Private Company	6	10.0

We calculated the confidence intervals using the Binomial Test, and if they do not overlap the null hypothesis can be rejected and the group with the highest number of respondents can be considered the “winner” in a statistical sense. On the other hand, if the confidence intervals overlap, the null hypothesis cannot be rejected and no definite conclusions can be drawn ([Gosavi, 2015](#)).

In general, if the null hypothesis was rejected at the established confidence level, we could state that the number of respondents who assessed the value as being “Important” or “Very Important” (Levels 3 and 4) for the transition to the CE exceeded the other levels. If the null hypothesis was not rejected, however, no definitive conclusions could be drawn.

Therefore, by applying the confirmatory survey, we were able to filter the initial list of values and identify 53 organizational values that were assessed as being important for innovation and for the transition towards the CE. However, since the results of some values were very heterogeneous, and we were consequently unable to reach a definitive conclusion, we had to apply a new filter to validate the data and obtain a more reliably consensual result.

Treatment of the results

This phase involved the inference and interpretation of the results to make them significant and valid (Câmara, 2013). According to Bardin (2011), this phase comprises a moment of intuition and reflective and critical analysis. We used the Fuzzy Delphi Method and a case study to validate the results.

Fuzzy Delphi Method

The Fuzzy Delphi Method (FDM) is a combination of the fuzzy theory and the traditional Delphi Method for considering human linguistic preferences in decision making (Saffie, Shukor, & Rasmani, 2016). This method makes it possible to capture vague information and convert it into a numerical format, which is simpler to handle. While predictions in the traditional Delphi Method are based on answers obtained from a panel of experts in two or more rounds until these answers converge, in the FDM the decision process is faster and eliminates the need for multiple rounds (Raut & George, 2018). Answers are analyzed using fuzzy numbers, which reduces the error level.

The 53 values we previously identified in this study were analyzed by eight CE experts (part of the CE Research Centre at the University of São Paulo) using the FDM. We developed a questionnaire, in which the experts were asked to rate the degree of importance of each of these values for sustaining a CE-oriented OC on a Likert Scale from 1 to 5 (1 = Not important; 2= Not very important; 3 = Moderately Important; 4 = Important; 5 = Very Important / Essential). We applied and analyzed the questionnaire in September 2020.

The experts’ answers were converted into triangular fuzzy numbers to identify the level of agreement with each item, as shown in Table 2. In general, the triangular fuzzy number consists of a fuzzy number that is displayed with three real numbers (F= (L, M, U)), where the upper bound, U, is the maximum value of the fuzzy number, the lower bound, L, is the minimum value of the fuzzy number, and M is the largest probable value of a fuzzy number (formal crisp value for the fuzzy set) (Habibi, Jahantigh, & Sarafrazi, 2015).

Table 2. Triangular fuzzy numbers considered in this study

Not important	Not very important	Moderately important	Important	Very important/Essential
(0.0; 0.0; 0.25)	(0.0; 0.25; 0.5)	(0.25; 0.5; 0.75)	(0.5; 0.75; 1.0)	(0.75; 1.0; 1.0)

After *fuzzification*, the experts’ answers were aggregated (Fuzzy Aggregation - FA) from an average of each expert’s triangular numbers, as shown in (1):

FA = (Σ L / n, Σ M / n, Σ U / n) (1)

*Defuzzification* was then performed in order to obtain the best average, that is, to convert the fuzzy values into clear and understandable numbers. There are different methods for this, but in this study, we used the Center of Area (CA) formula (2), where Fi is the fuzzy aggregation for the limit i.

CA = (|FU-FL|+|FM-FL|) / (3+FL) (2)

Finally, to analyze the results obtained with the CA formula, we established four levels of evaluation (Strong, Moderate, Weak, and Nonexistent) according to the relationship of organizational values required for supporting an OC that focuses on the CE (See Table 3). We selected these ranges taking into consideration the average cutoff value of 0.5 according to the literature (Saido, Siraj, DeWitt, & Al-Amedy, 2018; Yusoff, Hashim, Muhamad, & Hamat, 2021).

Table 3. Cut-off values for analyzing the results

Relationship sustaining a CE-oriented OC	Between	
	>	≤
Strong	0.8	1.0
Moderate	0.5	0.8
Weak	0.2	0.5
Nonexistent	0.0	0.2

We rated 29 values as having the strong relationship needed for maintaining a CE-oriented OC (i.e., CA>0.8). These values are emphasized in this paper as being circular organizational values, i.e., essential organizational values for sustaining a circular OC.

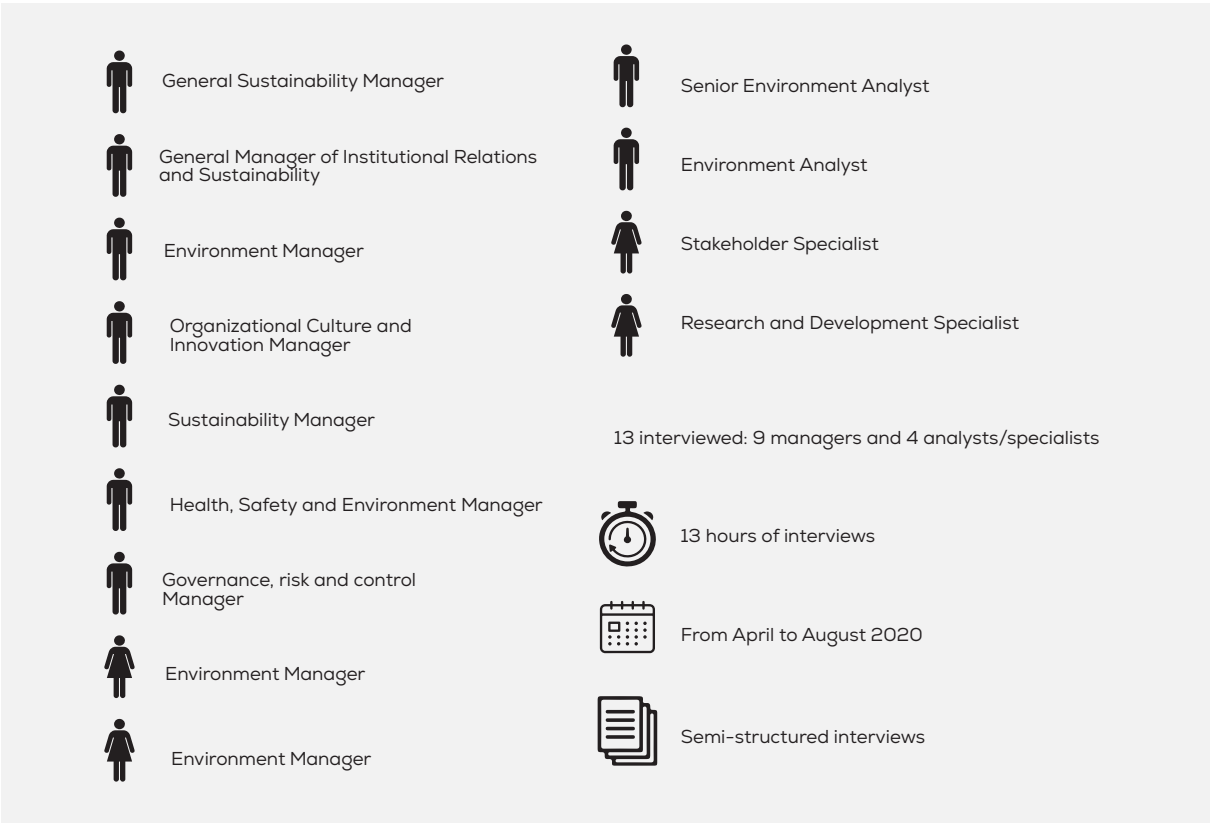
Case study

Since few real cases have ever been published that explicitly set out the circular values that an organization has for developing its culture and establishing the path to the CE, between April and August 2020 we carried out a single case study in a multinational company in the steel and mining sector that is a leader in steel production in Brazil. A case study is a “comprehensive description of an individual case and its analysis” (Starman, 2013, p. 31), the aim being to identify variables, structures, forms and orders of interaction among the participants in a “real life” setting, which enables comparisons to be made with a theoretical analysis (Simons, 2009; Starman, 2013).

We have not been allowed to disclose the name of the company, so we are calling it ‘Alpha’. We chose this company because of its importance to the Brazilian economy and its sustainable and circular initiatives. The sector in which the company operates is considered to be one of the most polluting, but the company is engaged in socio-environmental responsibility initiatives and has different projects, actions and mindsets in favor of sustainability and the CE, which stimulate the role that steel can play in a low-carbon circular economy for fostering sustainable development.

Our objective in applying this case study was: to exemplify whether the values that a real organization that wants to be circular has are indeed circular; and to identify the circular values the company is implementing and how it is implementing them. In conducting the case study, we combined interviews and document analysis. We carried out 13 semi-structured interviews with managers and analysts (see Figure 2 and Appendix II). We selected only people who work directly with sustainability and CE in the organization to take part in the interviews in order to have a more focused understanding of the organization’s panorama of circular values.

Figure 2. Details of the case study



## RESULTS AND DISCUSSION

Greater sustainability and circularity in organizations require changes in the way value is generated and business is done (Pieroni et al., 2019). This can be achieved by analyzing and understanding the human factor and the resources available for influencing the collective behavior of stakeholders that is required for achieving new organizational goals (Maitlis & Lawrence, 2007). Studying cultural issues when aiming at organizational paradigm shifts is important, because culture has a powerful function to perform in shaping human evolution (Boehm, 2008), and engagement with the CE and sustainability are affected by cultural dimensions (Morais, Pinto, & Cruz-Jesus, 2021).

Assessment of the OC usually focuses on organizational values (Linnenluecke & Griffiths, 2010), as they play an important role in organizations by influencing organizational structure, identity, and strategy (Gorenak & Kosir, 2012), and affecting business performance (Malbasic & Posarie, 2017). The main finding of this study, therefore, was the identification of those organizational values that support the transition towards the CE. These values are related to the future state of a circular company, that is, they are essential for supporting a circular organizational culture.

Generally speaking, in order to ensure its survival in the market every organization cultivates its own basic/core values, such as motivation, respect, integrity, excellence, and prosperity. Organizations that already have an innovative side cultivate values such as ambition, creativity, agility, proactivity, flexibility, and audacity, which stimulate motivation and inspiration in individuals for facing up to challenges, seeking new opportunities, and taking risks. In addition to these values are those that are relevant for sustaining and leveraging a CE-oriented OC, which are defined as circular organizational values. In this sense, organizations seeking to implement a CE should nurture, share and communicate to their entire business ecosystem a set of values that suits their corporate environment. Exhibit 1 shows the proposed circular organizational values and their definitions.

Exhibit 1. Circular organizational values

Organizational Value	Definition
Adaptability	The ability or willingness to change to suit different conditions.
Availability	The quality or condition of someone who is open to influences or ideas.
Awareness	Internalizing the importance of inclusion and respect for ethical values, preservation, sustainable development, and the quality of life.
Collaboration	Working with other people or organizations to create or achieve something in common.
Commitment	The state or quality of being dedicated to a cause or activity. A strong motivation to make efforts to achieve the organization's goals and values.
Communication	Two-way process of reaching mutual understanding, in which participants not only exchange information, news, ideas and feelings, but also create and share meaning.
Concern	Paying attention to implement mechanisms that stimulate production, consumption, and sustainable development.

(Continue)



Exhibit 1. Circular organizational values (Concludes)

Organizational Value	Definition
Continuous improvement	The desire to make the results better, more efficient and more effective.
Diversity	Feature of a mixed workforce that provides a wide range of abilities, experience, knowledge, and strengths.
Effectiveness	Achieving the desired results in the best way possible, so that the organization uses its resources intelligently and rationally.
Engagement with business ecosystems	The openness to participate in business ecosystems and associate with various types of companies, aiming to create a constantly evolving relationship in which each entity is flexible and adaptable in order to survive.
Ethics	The set of beliefs about what is morally right and wrong. The fundamental assumption of human behavior under which natural resource management decisions should be aimed at present consumption, without prejudice to future generations.
Future-oriented	Planning ahead before acting. Having a long-term view.
Humanitarian	An individual who desires the good of humanity. Being involved in, or linked to improving people's lives and reducing suffering.
Impact	The powerful effect or influence that something has on a situation, person, organization, society, or the environment. Positive impact in different areas (economic, social, and environmental).
Innovation	Creating and implementing new ideas that can be applied in products/services, processes, business models and value chains.
Longevity	The durability of something. Extending product life.
Openness	The ability to listen to comments, feedback, concerns, and new ideas, receive criticism, and engage in dialogue.
Proximity	Investing in a positive relationship with the different stakeholders of the organization.
Resilience	The ability to return to its original state after being disturbed.
Responsibility	Accepting responsibility for one's actions, admitting mistakes and learning from them. Considering the interests of society, assuming the impact of one's activities on customers, suppliers, employees, shareholders, communities, and other stakeholders, as well as on the environment.
Sharing	Sharing relevant information, ideas, suggestions and experiences with suppliers, research institutions, technology centers, universities, users, society, and other organizations.
Sustainability	Meeting present needs without compromising the ability of future generations to meet their own needs. Providing economic, social and environmental benefits simultaneously.
Synergy	The potential ability of individual organizations or groups to be more successful or productive as a result of cohesion and mutual efforts around a common goal.
Systemic innovation	An interconnected set of innovations, where each influences the other, with innovation both in parts of the system and in the ways in which they interconnect.
Systemic thinking	Understanding the interdependent relationships between the various components that make up the organization, as well as the environment with which they interact.
Transparency	A situation in which activities are conducted openly, without secrets, so that people can trust that they are fair and honest.
Waste reduction	Minimizing waste at source to reduce the amount needed to be treated and disposed of, which is usually achieved by better product design and/or process management.
Welcoming	Something or someone that invites or attracts by its characteristics.

Here we perceive that following the application of the confirmatory survey, the values, for which there was almost a consensus in terms of answers (>60%) at the highest levels of importance for the CE that we established in this study, were those that are most related to circular principles and to sustainability (including the SDGs), such as: collaboration, commitment, engagement in business ecosystems, ethics, future-oriented, innovation, sustainability, systemic thinking, and waste reduction. When discussing the CE, it is noticeable that much is said about sustainability, because sustainable production and consumption are central to the CE (Patil, Seal, & Ramakrishna, 2020).

There is a direct relationship between circularity and sustainable development because of the desire to benefit present and future generations by simultaneously creating environmental quality, economic prosperity, and social equality (Saidani, Yannou, Leroy, Cluzel, & Kendall, 2019). In order for organizations to become more sustainable, their sustainability activities need to fit in with the desired OC and be considered authentic across the business ecosystem. In this sense, the values identified here can drive the CE and consequently be a lever for sustainable development in organizations.

According to Salvioni and Almici (2020), a drastic change in values is needed to develop specific awareness of socio-environmental responsibility. These values should be shared among all stakeholders to inspire good practices, behaviors, and mindsets that are aligned with different SDGs. Rodriguez-Anton et al. (2019) stated that CE initiatives form strong relationships and have synergies with different SDGs, especially with SDG6 (Clean Water and Sanitation), SDG7 (Affordable and Clean Energy), SDG8 (Decent Work and Economic Growth), SDG9 (Industry, Innovation, and Infrastructure), SDG11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG13 (Climate Action), SDG14 (Life Below Water), and SDG15 (Life on Land). The CE is a tool that can be used globally and by different stakeholders to help achieve different SDGs. The circular organizational values identified in this study can also be great instruments for inspiring and engaging stakeholders to strive for common goals.

In this case study we also notice that in order to support the maintenance of a circular OC, Alpha emphasized sustainability as a core value. Kirchherr et al. (2018) stressed this idea and stated that the CE offers an innovative pathway to sustainable development, enabling the development of a modern, competitive, and at the same time, more sustainable economy (Rodriguez-Anton, Rubio-Andrada, Celemín-Pedroche, & Alonso-Almeida, 2019). Alpha nurtures reputation, loyalty, and transparency as values that guarantee the credibility of its products, services, and people with its stakeholders. Leadership, quality, health, and security are values expressed by people in the organization. Values like innovation and creativity are not so well disseminated, since the company is still very traditional, and it should make an effort to better integrate those values into its culture since they are essential for sustaining a circular OC. In addition to these values, the company should also strengthen other values, such as openness, collaboration, proximity, and humanitarianism for alignment with a circular OC.



The perpetuation of behaviors, beliefs, and principles that are favorable to circularity and sustainability requires that the values that have been identified in this paper and that focus on responsible production and consumption should be spread throughout the whole business ecosystem. These values are: the willingness and motivation to protect ecosystems and communities; the promotion of reuse, recycling, refurbishing and sharing of products and services to eliminate waste; an orientation towards long-term value creation in an innovative, flexible, resilient, and systemic way; the establishment of inclusion and engagement practices among stakeholders; and open, clear and transparent dialogue. Besides fostering circularity these values, have a strong relationship and synergy with sustainable development, especially from the 2030 Agenda perspective.

To form a long-lasting OC these values must be well communicated and shared throughout the business ecosystem, especially by strong leaders who disseminate those values that are socially and environmentally responsible (Hoffman, 1993). Alpha emphasized that its leaders have a fundamental role to play in demonstrating that the CE is not just on paper, but is a proposal for changing the culture by defining goals, resources and internal strategies. The company's top management must transmit the company's values to the employees, who, in turn, should pass them on in behaviors in the workplace and social environment, and to other stakeholders. Shared attitudes and beliefs are practiced on a daily basis and are habitually inspired through training.

Alpha has various behaviors that are aligned with its shared values. For example, the company encourages team engagement and motivation for developing solutions in the CE and sustainability fields. It arranges periodic meetings to present and evaluate issues to do with the development of CE projects. It trains everyone in the company in the basics of sustainability, and communicates all the projects and investments it is developing in a transparent way. Once there is alignment throughout the business ecosystem, the values of the circular organization are intended to inspire employees with creativity, motivation and empowerment for implementing circular and sustainable initiatives, and achieving the desired goals (Gorenak & Kosir, 2012).

The company also knows that there are beliefs that need to be strengthened in order to stimulate these behaviors, such as: "As a team, we're stronger than my individual opinion"; "If I work through the customer experience, I can generate work that is more interesting for my employees as well"; "I believe that employees can own their roles, and, regardless of any hierarchy, can make their contributions". Alpha also promotes the continuous improvement and excellence of its products and its people in order to be on the same level as its competitors, at least. As with any organizational change process, however, gaps are identified in the skills and resources that are needed.

Organizations generally need to look beyond its walls to create a viable business that has a positive impact on the whole ecosystem. Organizational values affect not only the internal work environment, but can also have an impact on the global values' system of individuals outside the work environment (Cambra-Fierro, Polo-Redondo & Wilson, 2008; Gond & Herrbach, 2006; Vitell & Ramos-Hidalgo, 2006).

The pressure for a more sustainable business is increasing and consideration of organizational values can help build a resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, in accordance with SDG9. Circular practices, initiatives, mindsets, and behaviors are essential for promoting sustainable industrialization and an inclusive economy, particularly considering industrial symbiosis, remanufacturing and closed-loop supply chains (Kruchten & Eijk, 2020), which can evolve from the circular and sustainable organizational values that balance the "triple bottom line" (planet-people-profit), such as those presented in this paper.

The alignment of organizational values throughout the business ecosystem can enable a trajectory towards a CE and sustainability, thus generating positive externalities (Cambra-Fierro et al., 2008). As stated by Crane (1995), strong sustainability and a CE-oriented culture require consensus among individuals and organizations with regard to environmental values. Culture is created by way of time, values, attitudes and materialized issues, and can be both powerful and subtle enough to make the entire business ecosystem rethink its role in sustainable development. When it comes to the CE and sustainability, the involvement of the entire business ecosystem is vital for the smooth running and effectiveness of the business.

## CONCLUSION

This paper identified and analyzed different organizational values that can help organizations in their journey towards a CE. Although understanding the criteria related to the OC is vital for sustaining and incorporating organizational changes and transformations, there are still limitations in the literature with regard to the specific characteristics of circularity.

Throughout the study, we observed that circular organizational values are essential for supporting an enduring OC in the transition to a CE, and for leveraging sustainable development. Organizational values are key elements for guiding organizational change, because they influence behaviors and build organizational identity. Values must be periodically reviewed in order to align them with the desired OC. Strong support from top management is also essential for disseminating a circular culture throughout the organization and its business ecosystem.

To promote sustainable industrialization and an inclusive economy, organizations should analyze, understand and identify those organizational values that are aligned with the desired OC. The circular organizational values identified in this study support the achievement of different SDGs because they encourage a motivating and innovative work environment and have great potential for encouraging sustainable attitudes. Organizations, therefore, should make every effort to create, change, and/or adapt a culture that supports a CE and sustainability.

The exploratory and theoretical characteristic of this study could be seen as a limitation, so we suggest that future research should focus on more practical and propositional research based on multiple case studies and more quantitative approaches. It should adopt a more systemic approach to bringing up the role of organizational values in the transition towards a CE from the ecosystem perspective and considering individual and collective aspects. This will help analyze the role and significance level of each circular organizational value identified by the

study in its transition towards a CE. There are also uncertainties and differences with regard to the assessment of the values required for a CE, which makes clear the need for further studies in the area. Doubts about the terms and a lack of clarity with regard to the relationship between organizational values and the CE still exist, as does the importance of organizational values as instruments for guiding change. This relationship should be fostered in order to enable innovation and motivate the stakeholders to strive to achieve common goals.

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## AUTHORS' CONTRIBUTION

Luisa Lavagnini Barboza and Ana Carolina Bertassini worked on the conceptualization and theoretical-methodological approach. The theoretical review was conducted by Luisa Lavagnini Barboza. Data collection was coordinated by Luisa Lavagnini Barboza and Ana Carolina Bertassini. Data analysis included by Luisa Lavagnini Barbosa. All authors worked together in the writing and final revision of the manuscript was coordinated by Aldo Roberto Ometto and Mateus Cecilio Gerolamo.