

Mapping organizational culture in the context of a circular economy: a case study for a Brazilian company

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RESUMO

Objetivo - Esta pesquisa visa responder a seguinte questão: “Qual cultura organizacional está inserida em uma empresa que adota um modelo de negócio circular?”

Referencial teórico - Embora a economia circular esteja ganhando recentemente atenção da academia, sua literatura não tem conseguido abordar, até o momento, a complexidade inerente a essa transição da abordagem linear para a circular, tanto no que se refere à mudança organizacional quanto à mudança de mentalidade.

Metodologia - Com o objetivo de identificar os valores e a cultura da empresa foi aplicado o Instrumento de Avaliação da Cultura Organizacional (OCAI) em uma empresa que faz parte do CE100 Brasil, representando, então, um *best case* no contexto estudado.

Resultados - Os resultados mostram que a empresa estudada é capaz de assumir comportamentos que promovem a inovação e o foco no desenvolvimento de produtos, características do perfil da cultura Adhocracia. A organização também mostra o desejo de abrir mão de processos formais e estruturados e adotar comportamentos que aprimorem a colaboração e o trabalho em equipe, características importantes dos negócios circulares. O estudo conclui que a metodologia OCAI foi capaz de mostrar tendências relacionadas aos negócios circulares.

Implicações de pesquisa - A limitação do estudo é a aplicação do método deste método OCAI em apenas uma organização. Assim, os autores sugerem que outras organizações sejam estudadas.

Originalidade - O estudo traz à tona a discussão sobre a importância da cultura organizacional e sua relação com a economia circular.

Palavras-chave: Economia Circular; Gestão da Mudança; Cultura; Modelo de Negócio Circular.

ABSTRACT

Purpose – This study aims to answer the following question: “Which organizational culture is embedded in a company that adopts a circular business model?”

Theoretical framework – Although the circular economy is gaining a lot of attention from the academia recently, the literature has not been able to address the complexity inherent to this transition from the linear to the circular approach, regarding both a change in the organization and mindset.

Design/methodology/approach – The Organizational Culture Assessment Instrument (OCAI) was chosen to identify the culture of the company and its values. The company selected was already in the CE100 network in Brazil so is a best-case scenario to be studied.

Findings – The findings show that this company can behave in a way to promote innovation and focus on product development, which are characteristics of the Adhocracy culture profile. The organization also shows a desire to let go of formal and structured processes and embrace behavior that enhance collaboration and teamwork, which are important features of circular businesses. The study concludes that the OCAI methodology was able to show tendencies related to circular businesses.

Research, Practical & Social implications – The study is limited since the OCAI method is only applied to one organization. As such, the authors suggest that other organizations be studied.

Originality/value – The study discusses the importance of organizational culture and its relationship with the circular economy.

Keywords: Circular Economy; Change Management; Culture; Circular Business Model.

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1. INTRODUCTION

The linear model of exploitation, production and consumption of materials is being challenged, among other initiatives, by the circular economy concept. This new mindset focuses not only on reducing waste by the adoption of cradle to cradle production patterns, for example, but also on the efficient use of resources, aiming at a harmonious relationship between society, economy and environment (GHISELLINI; CIALANI; ULGIATI, 2016). The transition to the circular economy model is immersed in changes for organizations, manufacturers, decision-makers, and consumers. Limitations and challenges encountered by the organizations, on the other hand, were listed as market factors, product/service pricing, technical knowledge and availability of technologies and business models (RIZOS *et al.*, 2016). Borrello *et al.* (2017) highlight that waste generation is a behavioral issue, and that consumers must engage and become active players on the transition to the circular model. Mindset change and consumerism are pointed out by Kopnina (2015) as challenges faced by initiatives that are willing to implement circularity. To promote behavioral change, they must be overcome by formal educational strategies.

Jesus and Mendonça (2018), point out key drivers and barriers to a circular economy, divided into “harder” and “softer” factors (Table 1). Two of the challenges involve major resistance to change: inflexibility of consumer behavior and rigidity of business routines.

Table 1 - Drivers, and barriers to a Circular Economy

		Drivers	Barriers
“Harder” factors	Technical	Availability of technologies that facilitate resource optimization, re-manufacturing and regeneration of by-products as input to other processes, development of sharing solutions with superior consumer experience and convenience	Inappropriate technology, lag between design and diffusion, lack of technical support and training
	Economic/ Financial/ Market	Related to demand-side trends (rising resource demand and consequent pressures resource depletion) and supply-side trends (resource cost increases and volatility, leading to incentives	Large capital requirements, significant transaction costs, high initial costs, asymmetric information, uncertain return and profit

		towards solutions for cost reduction and stability)	
“Softer” factors	Institutional/Regulatory	Associated with increasing demands in environmental legislation, environmental standards, and waste management directives	Misaligned incentives, lack of a conducive legal system, deficient institutional framework
	Social/Cultural	Connected to social awareness, environmental literacy and shifting consumer preferences (e.g. from ownership of assets to services models)	The rigidity of consumer behavior and businesses routines

Source: Jesus and Mendonça (2018).

Change is expressed in an organization by individuals’ behaviors and work. It takes into account communication, coaching, leadership, organizational culture, among others. Several strategies, tools and techniques to approach and manage change have been developed, as Kerber’s and Buono’s (2005), who indicate three concepts: directed change (driven from the top and relies on authority and compliance), planned change (may arise from any organizational level and seeks involvement and commitment), and guided change (emerges from people’s contributions and commitment to the organization’s goals). Directed, planned and guided change are influenced by two factors: socio-technical uncertainty and business complexity.

Beer and Nohria (2000) highlight the importance of a better understanding of the process of corporate change and divide it into two theories about how change should be made. Theory E (based on economic value) and theory O (based on organizational capability). However, the authors advocate that the solution to achieve a sustainable competitive advantage is to combine hard and soft approaches to change.

Nonetheless, there is an agreement that the change management literature addresses change as part of ‘everyday life’, that is, an essence of the management job, otherwise, it will become something extraordinary, making it easier for people to resist it (SCHAFFER, 2017).

Butman (2013) endorses the notion that companies approach new idea and changes in the organizational environment by prevailing a mindset, to gain influence and reach broad groups. The author, through an empirical study, lists seven recommendations that might assist managers to shift an organization’s mindset: accumulate evidence (supporting material); develop practices (feasible ways to explore the new idea); create a sacred expression (a compelling articulation of the idea); encourage ‘respiration’ around the idea (engagement);

include a personal narrative (give context and personality to the idea); align with a metric (a way to calculate the idea's value); and expect backlash (talk and debate the idea).

Keeping in mind the importance to identify values and culture profiles associated with circular organizations, and the role they play to successful transitions towards circular business models, this research intends to focus on this innovative area of study. Although the circular economy is gaining a lot of attention from the academia recently (more than 1,600 publications in this topic from 2015 to the present year, in contrast with the 703 ones published before that, according to the Web of Science database), its literature has not been able to address, so far, the complexity inherent to this transition from the linear to the circular approach, regarding both organizational and mindset change. Nor it has taken much thought on the influence of organizational culture in the whole process.

Therefore, this research aims to answer the following question: “Which organizational culture is embedded in a company that adopts a circular business model?”

Accordingly, we aimed to develop, an empirical analysis of a circular organization's culture and values through a case study in a company that represents a best-case scenario in a circular business model.

The structure of this article comprises a literature review on circular economy, circular business model, change management, organizational culture, competing values framework (Section 2); the presentation of the methodology used in the study (Section 3); results and discussion (Section 4) and conclusion (Section 5).

2. THEORETICAL FOUNDATION

2.1 Circular economy

Many environmental problems were caused by anthropic actions resulting from the use and exploitation of natural resources for the large-scale production methods. In the mid-seventeenth century, the manufacturing processes changed with the industrial evolution. The extraction of natural resources started to supply productive demand. The production model was based on the take, make and disposal. However, the Ellen Macarthur Foundation (2014) has presented a study stating that in less than 100 years many elements present in the periodic table will no longer exist, so the scarcity of elements will drastically influence the maintenance of this economic model.

Also, societal pressure, a significant increase in the price of products and services, and business volatility are forcing leaders and policymakers to rethink the use of materials and energy (ELLEN MACARTHUR FOUNDATION, 2017a). As an alternative to changing this scenario, the concept of circular economy arises proposing to keep the products, component, and materials usable and useful so that they can return to the technical cycle when the useful life of a product ends. Therefore, this economy is based on restoration and regeneration (ELLEN MACARTHUR FOUNDATION, 2017b).

However, the circular economy is not a new concept. It was created based on several schools of thought, some of which date back to the 1960s. These include (Table 2): industrial ecology and symbiosis, performance economy, biomimicry, cradle to cradle, blue economy, regenerative design, and natural capitalism (BSI, 2017).

Table 2 - Circular economy schools of thought

Schools of thought	Description
Industrial ecology and symbiosis	"An organization's waste and by-products are raw materials for another". (BSI, 2017 p.4)
Performance economy	"Sell performance rather than products". (BSI, 2017 p.4)
Biomimicry	"Innovation inspired by nature". (BSI, 2017 p.4)
Cradle to cradle	"Materials are technical nutrients cycling continuously or biological nutrients returned to the biosphere". (BSI, 2017 p.4)
Blue economy	"Using resources in cascading systems". (BSI, 2017 p.4)
Regenerative design	"Systems renew or regenerate energy and materials they consume". (BSI, 2017 p.4)
Natural capitalism	"Recognizes the critical dependency of business and economies on natural capital". (BSI, 2017 p.4)

Source: BSI 8001 (2017).

According to Scott (2015 p. 4) circular economy is:

“a concept used to describe a zero-waste industrial economy that profits from two types of material inputs: (1) biological materials are those that can be reintroduced back into the biosphere in a restorative manner without harm or waste (i.e.: they breakdown naturally); and, (2) technical materials, which can be continuously re-used without harm or waste”.

The circular economy is divided in the technical cycle and the biological cycle. The

technical cycle considers the management of finite resources, and the materials are designed to resume the cycle. The biological cycle considers the management of renewable resources, and the materials are designed to resume the cycle, according to MacDonough; Braungart (2002).

The circular economy has three principles: preserving and improving natural capital, with restoration and regeneration of natural resources; maximize performance features, which leads mainly to the reduction of waste and the circularity of resources; and stimulate the effectiveness of the system, generating positive impacts for all stakeholders (ELLEN MACARTHUR FOUNDATION, 2017a). The circular economy is based on innovation. Its main driver is the systemic effectiveness to generate positive impacts for stakeholders (OMETTO *et al*, 2018).

The study conducted by the Ellen Macarthur Foundation (2017a) presented an overview of existing circular economy activities in Brazil and identified possible opportunities for change. It pointed out that new business models should be developed in Brazil to boost the transition. It further stated that the shift to a circular economy requires organizations to innovate their business models (ELLEN MACARTHUR FOUNDATION, 2017c).

2.2 Circular business model

In the literature, some authors such Bocken *et al*. (2016) classify the circular business model as a type of sustainable business model: Mentink (2014) states that the circular business model does not necessarily consider the three dimensions of sustainability (environmental, social and economic).

Geissdoerfer *et al* (2017) have identified some differences between circular economy and sustainability. The term sustainability comes from the influence of social movements and Non-Governmental Organization (NGOs), while the concept of circular economy was influenced by cradle to cradle schools of thought, industrial ecology, biomimetics, among others. Sustainability does not think of closed circuits, unlike the circular economy. The main motivation of sustainability is diversification, while in the circular economy the focus is on improving resources. Scott (2015) relates sustainability to the circular economy and points out that when a product is designed to have a long-life cycle, this contributes to sustainability.

Thus, a Circular Business Model (CBM) “is the rationale of how an organization creates, delivers and captures value with and within closed material loops” (MENTINK, 2014

p. 24). This new approach confronts the linear business model in which the logic of value creation is based on the flow of materials and input of virgin raw material into the system (LINDER; WILLIANDER, 2017).

According to Linder and Williander (2017 p.183), a CBM is “as a business model in which the conceptual logic for value creation is based on utilizing economic value retained in products after use in the production of new offerings”

Lacy and Rutqvist (2015) indicate five circular business models: (a) the business model based on the circular supply chain, where renewable, recyclable or biodegradable resources are put into the chain, (b) the business model based on recovery and recycling, where companies recover products at the end of life, reuse materials and components, recover waste and by-products from a productive process, (c) the business model based on the extension of product life, where maintenance and improvement occur through repairs, upgrades and remanufacturing, (d) the business model based on the sharing platform, where companies rent, share, exchange or lend their idle assets, and (e) the business model based on the product as a service, where consumers move to buy the services and not the products.

The British Standards Institution (BSI) 8001 (2017) publication points six groups that have the potential to be compatible with a circular economic system. These include on-demand; dematerialization; product life cycle extension/reuse; recovery of secondary raw materials/by-products; product as a service/product-service system (PSS); and sharing economy and collaborative consumption.

In this context, the change to a circular economy requires organizations to innovate their business models (ELLEN MACARTHUR FOUNDATION, 2017a). However, innovating is not always an easy task as it involves the need for change. Lawrence (1969) already pointed out that one of the problems of organizations to innovate is related to the resistance of employees to change. Thus, some leaders fail to manage organizational change (STREBEL, 1996).

According to Bonchek and Libert (2017), many organizations are looking for disruptive business models. The authors state that the business model is only one part of the equation. They point out that for transformation to occur organizations must consider performance models and mental models, in addition to business models.

Also, for Bonchek and Libert (2017) some organizations try to implement business

models based on success stories but fail because the mental models are totally different. In these cases, the leaders realize that failure has occurred through their own thinking. The authors further argue that it is necessary first to change the way one thinks and then change the way one acts. Given this context, change management can be a crucial factor in helping organizations to shift their linear business models to become more circular and sustainable.

2.3 Change management

The current business environment requires the ability to lead organizational change for individuals, teams, and entire organizations. According to Moran and Birghtman (2001), mastering strategies for managing change is more important today since the rate of change is greater than at any time in history.

In today's fast-moving market, the ability to easily and appropriately handle change is even more important than before; that is why some organizations need to implement and automate best practices for the entire end-to-end change management lifecycle (SARAYREH *et al.*, 2013).

Companies in every industry are increasingly being challenged to build the capacity for change, not only in response to competitive and technological pressures but also in anticipation of those changes (KERBER; BUONO, 2005).

Change Management is an organizational process aimed at empowering employees to accept and embrace changes in their current environment. Several different streams of thought have shaped the practice of change management and can be considered as a tool of Transitioning. So, change management is a critical part of any project that leads, manages, and enables people to accept new processes, technologies, systems, structures, and values. It is the set of activities that helps people transition from their present way of working to the desired way of working (CHANGE MANAGEMENT LEADERSHIP GUIDE, 2011).

Moran and Brightman (2001) defined change management as the process of continually renewing an organization's direction, structure, and capabilities to serve the ever-changing needs of internal and external customers.

Sarayreh and colleagues (2013) explain the concept of change as the process of moving from one defined state to another. Change management is the process of planning, controlling, coordinating, executing, and monitoring changes that affect an environment and considered that

is a critical aspect of every business.

Kerber and Buono (2005) examined and discussed three basic approaches to organizational change: (a) directed change, that is driven from the top of the organization, relies on authority and compliance, and focuses on coping with people's emotional reactions to change, (b) planned change, that may arise from any level in the organization but ultimately is sponsored at the top, and, finally (c) guided changing, that emerges from within the organization and people's commitment and contributions to the purpose of the organization.

Also according to Sarayreh and colleagues (2013), the main role of the changers (leaders) is to help businesses to run continuously in a consistent state. Leaders should view change not as an occasional disruptor but as the very essence of the management job. Setting tough goals, establishing processes to reach them, carrying out those processes and carefully learning from them — these steps should characterize the unending daily life of the organization at every level (SCHAFFER, 2017).

And the continuous process of aligning an organization with its marketplace and doing so more responsively and effectively than competitors is a competitive tactic for change management (KUDRAY; KLEINER, 1997).

So, there is a need for tools to implement and manage change in organizations. That tool is desired to cover several criteria and provide information for efficient use by the manager. The CVF tool (Competing Values Framework) approaches the values in organizations and provides the manager with information about the current cultural model and the desired one.

2.4 Organizational culture

Organizational culture is the pattern of basic assumptions that a group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that has worked well enough to be considered valid, and to be transmitted to new members as the desired way to think, perceive, and feel concerning these problems (SCHEIN, 1984).

Strategy and culture are two primary elements that leaders can use to maintain organizational viability and effectiveness. The strategy offers a formal logic for the company's goals and orients people around them. Culture expresses goals through values and beliefs, guiding activity through shared assumptions and group norms (GROYSBERG, 2018). The

strategy provides transparency and focus for the organization to mobilize people. Culture, however, is based on unspoken behaviors, mindsets, and social patterns.

Groysberg (2018) defines culture as the tacit social order of an organization: it shapes attitudes and behaviors. Cultural norms define what is encouraged, discouraged, accepted or rejected within a group. The author reviews and summarizes the literature, in four commonly accepted attributes:

- Shared: the culture does not exist as an individual characteristic, and is usually is perceived in shared behaviors, values and assumptions of a group.
- Pervasive: culture is perceived in different levels of the organization, including the rituals, symbols, stories and legends.
- Enduring: culture influences group members in the long term.
- Implicit: people respond to cultural values instinctively.

Culture reveals its role when organizations attempt to improve their operations in response to new data from economic, social, political, or technological environments. Culture in this context is the collective of implicit assumptions that determine how a group will perceive, think about, and react to different environments (SCHEIN, 1996).

2.5 Competing values framework

Quinn and Rohrbaugh (1981, 1983) have studied the organizational effectiveness and proposed a framework to fulfil the need of a multicriteria analytical tool providing a visual model based on the competitive criteria of focus (development of people or development of the organization), structure (emphasis on stability or emphasis on flexibility), and means and ends (focus on internal processes or outcomes). Later, they integrated the third criteria into the other two and established the Competing Values Framework (CVF).

Since then the CVF has been used also as an approach to study organizational culture and applied to issues like leadership development and organizational change (DENNISON; SPREITZER, 2001).

Cameron and Quinn (2011) defined a visual representation to describe the competing values in organizational culture. The horizontal axis reflects the competing of internal focus on people versus external focus on the success of the organization, while in the vertical axis the competing is created by flexibility versus maintaining control and stability.

The resulting four cultural profiles are clan, adhocracy, market, and hierarchy. Clan, or group culture, has a focus on flexibility and the internal environment in an organization, characterized by trust and collaboration as core values, exploring the development of people. Adhocracy, or developmental culture, is based also on flexibility but directed to using the creativity to the external environment, based creativity to discover new alternatives to market growth or developing new capabilities. The hierarchy culture consists of the values of consistency, efficiency, and control. It is oriented towards efficiency and uniformity inside the organization. The rational, or market cultural type, is also based on control but oriented to the external market. Core values of the rational culture are competition and achievement.

To determine how the organizational culture can be represented through the CVF, Cameron and Quinn (2011) have developed the Organizational Culture Assessment Instrument (OCAI), a tool to collect data usually applied as a questionnaire or interview with the members of an organization.

3. METHODOLOGICAL PROCEDURES

To identify values and the culture of the company, the Organizational Culture Assessment Instrument (OCAI) was chosen. This instrument illustrates how an organization operates and the values associated with it, by assessing six different dimensions of organizational culture: dominant characteristics; organizational leadership; management of employees; organization glue; strategic emphases; and criteria of success (CAMERON; QUINN, 2011).

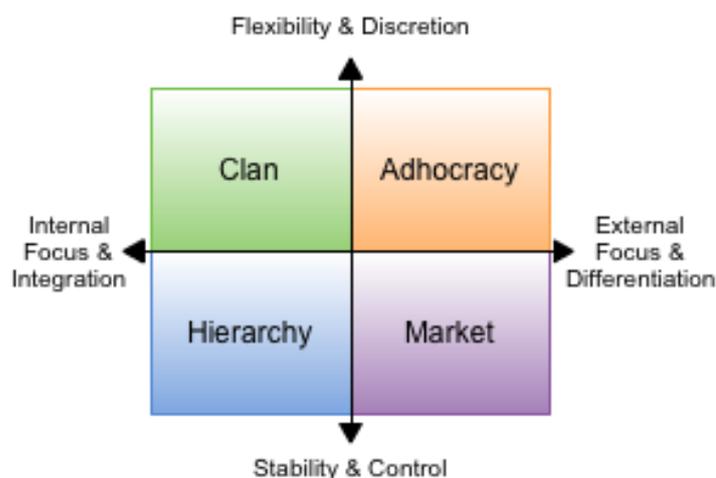
Gigliotti; Paro; Gerolamo (2020) used the OCAI in one of the stages of the development of an instrument that aims to measure the organizational culture from perceived values. Santillán-Zapata et al. (2020) used OCAI to identify the current organizational culture of the financial system of the province of Huancayo. Mrkonjić *et al.* (2019) used to determine which organisational culture is prevalent in two Croatian hospitals. In this context, managers can use this instrument to map the culture of organizations, including circulars. Another important point is that the authors did not identify in the literature studies that use OCAI as an instrument to guide the implementation of the circular economy in an organization.

OCAI interview form consists of six questions, referring to the six dimensions listed

earlier. Each question has four alternatives (Appendices). Respondents must distribute 100 points among these four alternatives, depending on the extent to which each alternative is similar to their own organization. Each one of the four alternatives corresponds to a unique culture profile (clan, adhocracy, market and hierarchy) and the average distribution of points, considering all respondents and the six dimensions, results in a graph, similar to the one in Figure 1, that reflects collective assumptions, values, activities and artefacts that are characteristic of the studied organization. The respondents answer these questions based on the current culture (now) and what they envision for the future (preferred).

Several authors validated the reliability of the OCAI methodology (CAMERON; QUINN, 2011). Quinn and Spreitzer (1991) and Yeung *et al.* (1991) measured, statistically, the usability of the OCAI as a method to analyse organizational culture, and both resulted in findings that proved this to be a valid tool to its purpose. Also according to Cameron and Quinn (2011), the evidence that numerous researches were conducted, in distinct contexts, and resulted in the same culture types patterns, associated with the same set of values, indicates the consistency and reliability of this instruments.

Figure 1 – Example of Culture Profile using OCAI



Source: Choi, *et al.*, 2010.

It is important to highlight that no classification of culture is preferable compared to

another, that is, there is no intrinsically better culture, neither there are right or wrong ‘types’ of culture. Better understanding the position and values an organization holds is important to the development of new strategies and to place for effectively tangible and intangible resources (THARP, 2009).

The methodology was applied to a circular organization in the Brazilian market, to identify which characteristics may be relevant or needed for the circular business.

The circular economy is characterized by its innovative employment of opportunities (GHISELLINI; CIALANI; ULGIATI, 2016), including how society legislates, produces and consumes (PRIETO-SANDOVAL, *et al.*, 2018). The transition towards the circular model is disruptive and requires new solutions to issues that are well known or new to an organization and their stakeholders, challenging their capability to manage innovation (RITZÉN; SANDSTRÖM, 2017).

Innovation is, therefore, a crucial feature for the circular economy, listed as one of its principles by the British Standards Institution (BSI) 8001 (2017) and as the ability to “create value by enabling the sustainable management of resources through the design of processes, products/services and business models”.

Accordingly, it is expected that circular organizations give importance to this value, reflecting in the OCAI results, for example, highlighting the market and adhocracy culture.

3.1 The organization

Regarding initiatives related to the circular economy, the Ellen MacArthur Foundation introduced the circular economy 100 (CE100), a program established to leverage innovation initiatives and develop new opportunities in a collaborative way among several stakeholders. The Foundation selects its partners and collaborators based on criteria that guarantee the ability to define and develop projects and establish goals related to the circular economy, covering several areas such as innovative business models, materials selection and renewable energy systems. The selected company is part of CE100 in Brazil, representing, then, a best case in the studied context.

This selected company was created in 2017, as a result of the expansion of a previous consulting company. It is located in two different sites, one with approximately 30 collaborators and focused on product development and an industrial unit that employs about 100 people. The

organization's goal is to maximize the value created and shared to all the actors in the value chain involved in their projects. Its business model is characterized by the recovery and recycling of products at the end of life, therefore reusing materials and components, and recovering waste and by-products from a productive process, relying mostly on the development of innovative technology.

This company was born embedded in circular concepts and works to generate positive economic, social and environmental results, acting primarily in two areas: reverse logistics, and circular engineering.

3.2 Data collection

Case Study is an ideal exploratory methodology to answer "how" and "why" questions. It investigates technically unique situations in which there will be many more variables to be analysed than data points as a result. Besides, it is based on the collection of several evidence that must be combined to obtain a result (YIN, 2005). Also, its purpose is to provide a theoretical contribution to the circular economy literature.

The data was collected through an online survey, where the respondents could distribute points to each alternative, for the six questions. The link was sent by email to the collaborators, who had one week to answer the survey. In total, eight people completed the survey, including employees from the following departments: commercial, research and development, administration/finance and management and planning. Also, these collaborators have different roles in the organization, such as analysts, assistants, coordinators, members of the board and leaders.

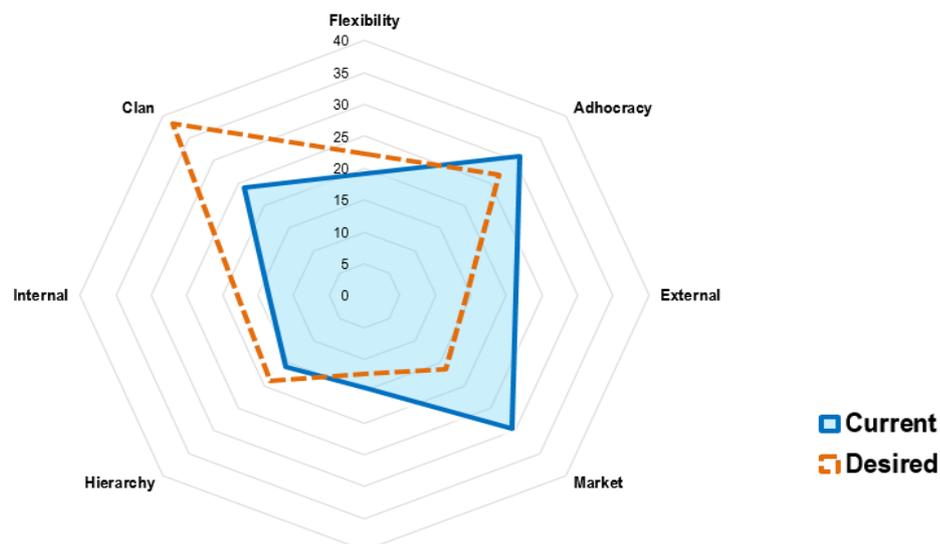
4. RESULTS AND DISCUSSION

This section of the work is divided into two parts. The first, 'General Results', presents and discusses the findings considering the current and desired scenario of all answers collected, that is, the overall organizational culture. The second part, 'Results considering the functions', stratify the results according to the hierarchical levels of the employees.

4.1 General results

The organizational culture of the company was identified through the answers of the OCAI questionnaire of eight employees of different hierarchical levels. The researchers asked respondents to answer the questionnaire in two ways, the first one based on the company's current scenario and the second based on the desired scenario (how employees would like the company to be) (Figure 2).

Figure 2 - Mapping of the current and desired organizational culture



Source: authors

According to Figure 2 the predominant organizational culture in the studied organization was adhocracy. The organizational culture based on adhocracy is characterized by dynamism, entrepreneurship, and creativity (CAMERON; QUINN, 2011). The long-term goal is to grow the organization and be in the market leadership because success is based on obtaining exclusivity and creating new products and services. Therefore, innovation is supported and applied in the organization at all times.

According to the authors Chesbrough (2010); Lüdeke-Freund (2010); Zott *et al.* (2011), innovating the business model is considered as the key to business success. Thus, the results confirm the researchers' expectations, that the predominant corporate culture that adopts the principles of the circular economy is based on adhocracy. Studies from Ometto *et al.* (2018) and the Ellen MacArthur Foundation (2017c) indicate that innovation is the key to the transition from a linear to a circular and collaborative economy, so these results suggest that the adhocracy

culture profile has shared values with the circular economy.

Also, the data collection point out that the market culture is also imperative in this organization. The main features of the market culture are the focus on results and the emphasis that winning unifies the organization (CAMERON; QUINN, 2011). Organizations with this cultural profile wish to occupy or maintain their market-leading positions, people are competitive and goal-oriented in the long term, and the results must be measurable.

As Circular Business Models are oriented towards an innovative logic of value creation, delivery and capture (LINDER; WILLIANDER, 2017; MENTINK, 2014), it is expected that circular organizations are focused on the market perception and acceptance of their offerings (products and services) (HOPKINSON *et al.*, 2018; PLANING, 2015).

Moreover, the market and adhocracy cultures, identified as predominant in this organization that adopts the principles of the circular economy, have an external focus, that is, it manages and orchestrates customers and other stakeholders' roles and expectations. This holistic approach ('System Thinking'), considerate of all stakeholders, is another important circular principle (BSI, 2018). Which reinforces the relationship between these two cultures and the circular economy, mainly its values and principles.

The second set of results shows the profile that represents the organization in the desired future scenario. Figure 2 points out that the overall analysis of respondents show that they would like the organization to develop clan-based culture, increase hierarchy culture, and diminish the culture of market and adhocracy.

The clan-based organizational culture is characterized by collaboration, where people are friendly and share experiences. Leaders are considered mentors and family members, traditions are respected, and people are strongly interested in organizing (CAMERON; QUINN, 2011). Teamwork, participation, and consensus are key characteristics. These features of friendliness and closeness are built over time (CHAN, 1997), and, as this organization is quite new, it is possible to assume that the employees expect this culture profile in the future.

Table 3 presents the average of the answers according to each dimension and scenario (current and desired).

Table 3 - Average responses considering the current and desired scenario

	Strategic Emphasis		Success Criteria		Dominant features		Organizational Leadership		Employee Management		Values	
	C	D	C	D	C	D	C	D	C	D	C	D
Cla	25,56	37,50	18,33	36,25	25,56	25,63	18,89	39,38	31,67	48,75	23,89	41,25
Adhocracy	40,00	26,88	33,33	28,13	22,78	28,75	35,00	24,38	25,56	23,75	28,33	28,75
Market	23,89	16,25	31,67	16,25	32,22	19,38	22,22	15,00	33,33	11,25	33,33	19,38
Hierarchy	10,56	19,38	16,67	19,38	19,44	26,25	23,89	21,25	9,44	16,25	14,44	10,63
Sum	100	100	100	100	100	100	100	100	100	100	100	100

Legend: C = Current; D = Desired

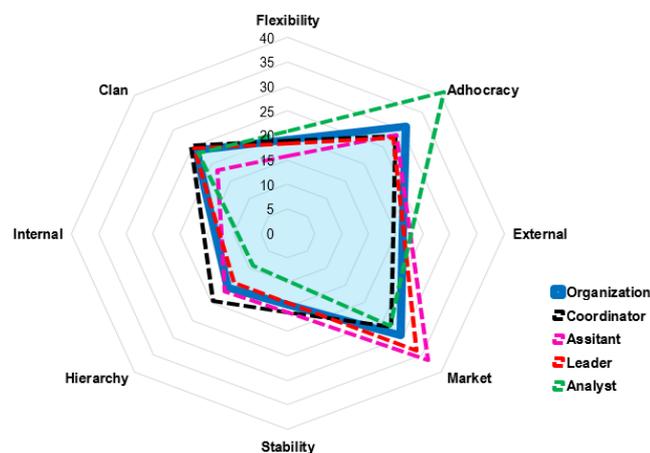
Source: authors

According to Table 3, all the averages of the desired scenario for the clan culture were higher than the current scenario, reinforcing the respondents' wishes to develop new values to migrate to this culture profile. Concerning adhocracy and market, all the averages related to the desired scenario were smaller than those of the current scenario.

4.2 Results considering the functions

When considering the answers divided by hierarchical levels (organizational functions: assistants, analysts, leaders and coordinators), it was possible to evidence the common and shared perception that the current organizational culture is primarily based on the adhocracy and market profiles (Figure 3).

Figure 3 - Current map of organizational culture represented by functions

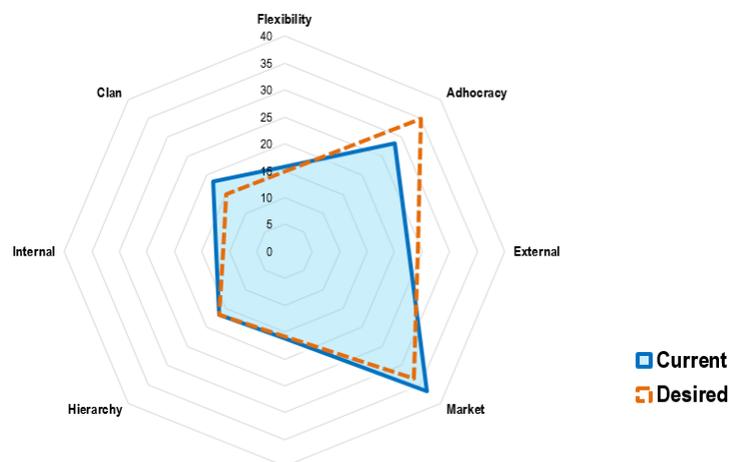


Source: authors.

However, there was a very distinguished understanding on how the future organizational culture profile should look like.

Assistants, for instance, expressed the desire to maintain the hierarchy culture as it is, showed slight differences regarding the clan and market profiles and an urge to an even more innovative environment (Figure 4).

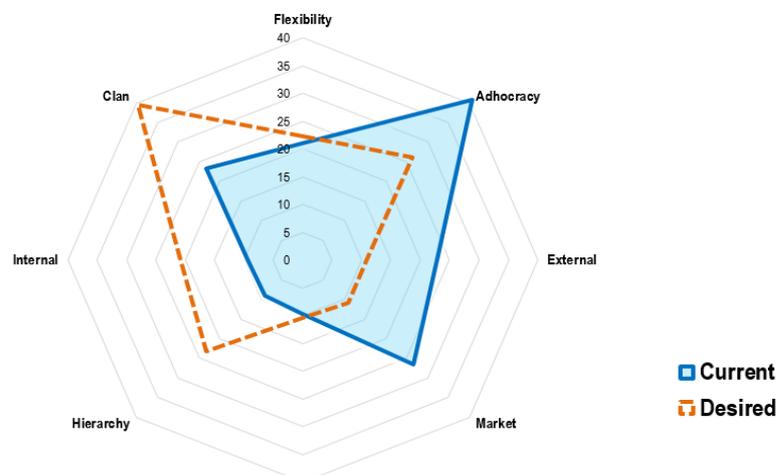
Figure 4 - Map of the current and desired organizational culture of the assistants



Source: authors.

Analysts, on the other hand, envision an increase towards hierarchical features at the same time as they urge for the sense of belonging and family environment (Figure 5).

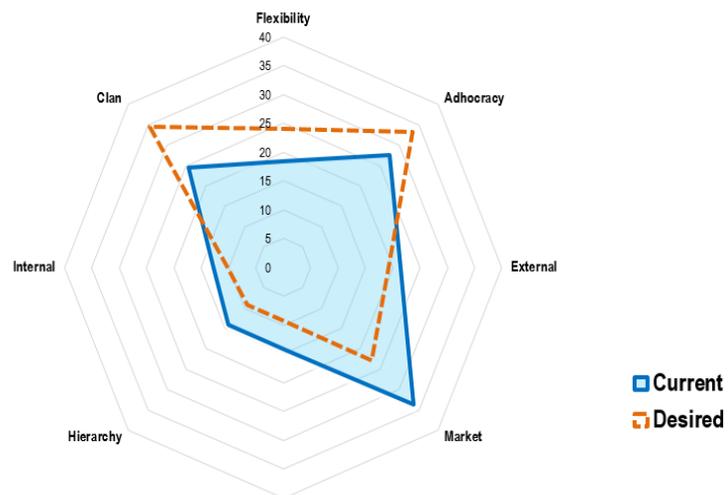
Figure 5 - Map of the current and desired organizational culture of the analysts



Source: authors.

Leaders, on their turn, highlight the concern towards an environment of development, where the employees can embrace new challenges and nourish good teamwork with their peers (Figure 6).

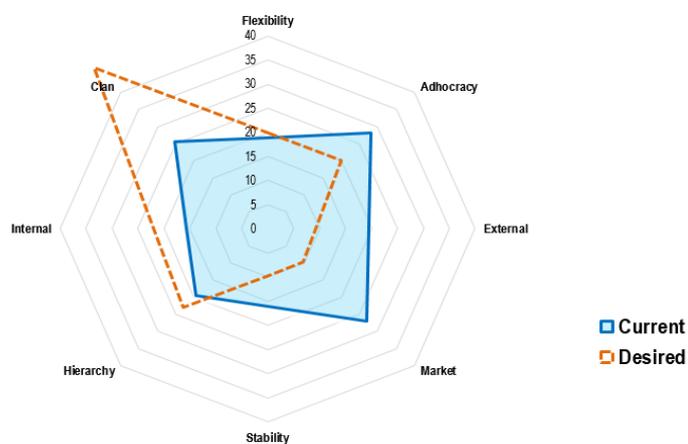
Figure 6 - Map of the current and desired organizational culture of the leaders



Source: authors.

The group of coordinators also envision a strong clan culture, presenting a transition from an external focus (current) to an internal one (desired) (Figure 7).

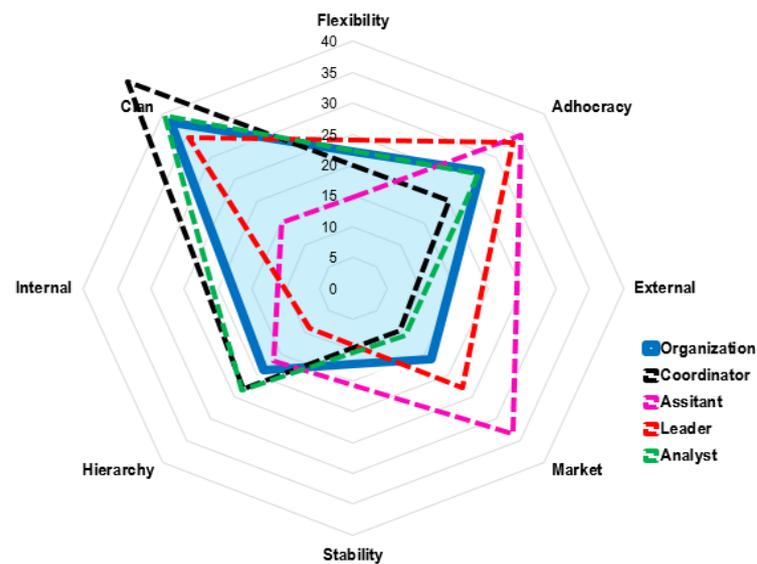
Figure 7 - Map of the current and desired organizational culture of the coordinators



Source: authors.

Therefore, three of the groups, analysts, leaders and coordinators, expressed their will to be in an organization that shows higher concern towards human relations, individual development and sense of belonging, prioritizing the clan profile (Figure 8).

Figure 8 - Desired map of organizational culture represented by functions



Source: authors.

Additionally, analysts and coordinators also agree that, besides the clan profile, the organization should balance hierarchy and adhocracy, relocating its focus from the market culture. Leaders, on the other hand, do envision the market profile, in addition to clan and adhocracy, as an important feature for the organization's future.

Differently, assistants do not anticipate clan characteristics as desired. The group prioritizes a market and adhocracy profile, balanced by hierarchy features.

5. CONCLUSION

This empirical study shows that the organization's culture is based in a formal and structured behavior, where prevails predictable and consistent processes, guaranteeing a good performance. However, as many scholars have discussed, for example, Fischer and Pascucci (2017), good interaction and communication between actors of an organization, and also between organizations, are seen as key elements to the success of circular businesses. The employees, by answering which kind of behavior they would like to witness and take part in

this Brazilian organization, show a concern towards this subject, demonstrating that they value characteristics as teamwork, collaboration and participation in their workplace, that is, behaviors consistent with the clan-based organizational culture.

Furthermore, the adhocracy organizational culture, characterized for being dynamic and valuing the creation process, is present in both current and desired culture profiles, which is consistent with circular business in general. Niero and Olsen (2016), highlight that the focus on innovation and product quality are especially important to circular businesses

that work with recycling and reverse logistics, which is the case of the studied organization.

Therefore, the study concludes that the methodology was able to show tendencies related to circular businesses and, with further studies, may help organizations to achieve their goals regarding their business models, pointing out which paths to follow. It may also help other organizations in their transition to the circular economy.

A single case study was carried out, so the results cannot be generalized to other organizations, especially when we approach organizational culture. Therefore, this fact can be pointed out as a limitation of the research. As for future work, we indicate the application of the OCAI based questionnaire to other organizations from different sectors that adopt the principles of the circular economy.

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Appendix A. Questionnaire: Organizational Culture Assessment Instrument

1. Dominant Characteristics		Now	Preferred
A	The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.		
B	The organization is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks.		
C	The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.		
D	The organization is a very controlled and structured place. Formal procedures generally govern what people do.		
Total			
2. Organizational Leadership		Now	Preferred
A	The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.		
B	The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking.		
C	The leadership in the organization is generally considered to exemplify a non-nonsense, aggressive, results-oriented focus.		
D	The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.		
Total			
3. Management of Employees		Now	Preferred
A	The management style in the organization is characterized by teamwork, consensus, and participation.		
B	The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness.		
C	The management style in the organization is characterized by harddriving competitiveness, high demands, and achievement.		
D	The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.		
Total			
4. Organization Glue		Now	Preferred
A	The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.		

B	The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.		
C	The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.		
D	The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.		
Total			
5. Strategic Emphases		Now	Preferred
A	The organization emphasizes human development. High trust, openness, and participation persist.		
B	The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.		
C	The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.		
D	The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important.		
Total			
6. Criteria of Success		Now	Preferred
A	The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.		
B	The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.		
C	The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.		
D	The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.		
Total			