



# Circular Economy, Sharing, and Sustainability: Challenges for the Social Economy in a Territory That Wants to Become a Smart Region

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## ABSTRACT

This study aims to analyse the predisposition of social economy agents to resource sharing. To achieve this, it was chosen to implement an exploratory qualitative approach directed to managers and an exploratory quantitative approach directed to employees. The results allowed the authors to estimate that they do have a significant economic impact on number, paid work, and business volume. The relationship between the interest demonstration on sharing and the appropriate qualifications for the jobs of managers and employees was shown. The practice of informal and non-regulated sharing of own and third parties' resources, among close partners, without the existence of a management model of knowledge, assets, time, use/reuse, and exploitation was demonstrated. It is anticipated that the study could serve as a scientific/methodological basis for a regional investment project, R&D, and establishment of partnerships, reconciling interest in a smart region, as well as the application of circular economy principles.

## KEYWORDS

Circular Economy, Sharing, Smart Economy, Smart Regions, Social Economy, Sustainability

## INTRODUCTION

This study focuses on reflecting on the benefits of circular economy, from the perspective of sharing economy. It aims to assess the socioeconomic influence of social economy organizations, to understand the perceptions of top managers, intermediaries and employees about shared management practices, as well as the importance of resource management for their sustainability, through intelligent solutions which incorporate technology and governance models in the region.

In fact, sharing, networking and collaboration work are at the origin, status and social object of social organizations, cooperative movements and civil society. But are they willing to evolve, in line with the challenges of sharing economy?

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Several studies (e.g., Spowers, 2018, Recommerce, 2019, I am Amsterdam, 2019) published by Ellen MacArthur Foundation indicate that, in the future, no sector will be immune to advances in technology, concerns about climate change and the transition to sharing economy, at the expense of the economy of asset ownership. To some extent, the evolution of economy is moving towards the combination of related concepts: smart, circular and sharing economy, which represent intelligent solutions to circulate at the highest level of utility, with the possibility of having shared resources. According to Tabora (2016), in the sectors of transport (e.g. Uber or Riversimple), tourism (e.g. Airbnb), housing (e.g. cohousing) and digital communities (e.g. Share) there is a growth in interest and users.

No study with coinciding objectives was identified, which relates the three concepts. Since the circular economy is a poorly researched area, some studies focused on green economy, natural capital, recycling, reuse of resources and initiatives of economic activities of the profitable sector, but few on the underlying sharing of the circular economy. The existing studies on the social economy show the social and economic importance of the entities that integrate it, but there are no known studies with examples of regulated resource sharing. On the other hand, there is information on smart cities, smart activities and initiatives, but no studies on smart regions and benefits of service sharing in non-profit sector have been identified.

It is believed that this research is pertinent and contributes to greater knowledge on the subject, for future thoughts, and that it is useful for social economy agents, involved in territorial development dynamics and in the establishment of formal partnerships. It is expected that the study can serve as a scientific and methodological basis for a regional investment project, based on the principles of both circular and sharing economy.

The following research question was asked: Is there a willingness of social economy actors to share resources? Based on the case study of *Terra Quente Transmontana*, a mixed methodology was used through various sources: an exploratory study through qualitative methodology, using an interview with those responsible for the organizations, introduced by materials for the dissemination of concepts and principles of circular economy, an organized script, followed by a questionnaire applied to the organizations' employees. At the same time, a bibliographical and documentary research was carried out, which allowed the approximation to the object of the study. To achieve the general objective, four specific objectives were defined:

1. Evaluate the economic impact of the organizations which compose the social economy, based on published data;
2. Verify if the interest in sharing is related to the skills that the agents have, based on information from themselves, which leads the implementation of a training /information strategy;
3. Analyse historical behaviours on resource sharing, based on testimonies of relevant agents;
4. Verify the interest of social economy entities in sharing resources among themselves, obeying the principles of circular economy and that lead to a common strategy of action, based on testimonies of those responsible for the organization.

Based on the specific objectives, the research methodology was defined. For the first specific objective, a literature search was conducted in Portugal and in the European Union, which resulted in the theoretical framework and contextualisation. The relationship between the concepts of social economy, circular economy, smart economy of the smart regions, and sustainable development is demonstrated. The economic impact of the organizations that make up the social economy is verified in official databases.

The activities developed to achieve this objective involved gathering information to analyse the economic relevance of social economy entities through government databases (National Institute of Statistics, 2019) (regarding the number of entities and the number of employees), national databases on the registered entities (António Sérgio's Cooperative for Social Economy – CASES and Social

Security) with head office in the region, and those responsible for the Social Network of the five municipalities of *Terra Quente Transmontana* (regarding the economic representativity and dynamism of social economy entities operating in each municipality). At the end, a proposal is presented for the typification of social economy entities, in social, economic and legal context, through territorial mapping and economic relevance, to define the population under study.

For the remaining three objectives, quantitative and qualitative research, applied to the population, was carried out: regional and local agents. For the second specific objective, a quantitative study was designed, through a survey of the collaborators of social economy organizations. For the third and fourth specific objectives, qualitative research was carried out through an exploratory interview with five top managers of social economy organizations.

## BACKGROUND

The literature research allowed to take an approach to three key concepts: - circular economy, social economy and regional (smart) intelligence or smart economy, - and a cross-cutting concept of sustainable development. The aim is to highlight a possible relationship between them, based on science, knowledge and technology – focused on the design of innovative and more efficient digital services, arising from the combination of raw materials and regional products, intelligent systems and solutions, which is the basis of the performance economy.

### Circular Economy

The concept has origins linked to various schools of thought, including performance economics. Stahel and Reday-Mulvey (1981) defend the vision of a cyclical economy, its impact on job creation, economic competitiveness, resource reduction and waste prevention. Responsible for the term “Cradle to Cradle”, Stahel (2010) states that circular economy would change economic logic because it replaces production with sufficiency: reuse what you can, recycle what you cannot reuse, repair what does not work, redesign what cannot be repaired.

The Ellen MacArthur Foundation (2019) defines the circular economy as a restorative and regenerative economy by design, which aims to maintain products, components and materials in their highest utility and value at all times. This concept tries to reproduce, in the production process, what nature has been doing for millions of years, in line with the observation of the French chemist Antoine Lavoisier: “in nature nothing is created, nothing is lost, everything is transformed” (Lemos, 2018).

In the context of transition support policies, the Communication from the European Commission to the Parliament, to the Council, to the European Economic and Social Committee and to the Regions’ Committee ‘Closing the loop - EU action plan for the circular economy’ (2015) highlights the European Union’s commitment to achieving this goal. These refer to the principles of the circular economy, of which the following table stands out.

Circular economy business models are divided into two groups: those that promote reuse and extend shelf life through repairs, refurbishments and upgrades; and those that turn old goods into new resources by recycling materials.

Stahel (2018) states that there are three types of economy: linear, circular and performance. The first flows like a river, is efficient in overcoming scarcity, but wastes the use of resources in saturated markets. The circular is like a lake, the reprocessing of goods and materials generates jobs and saves energy, reducing resource consumption and waste. Performance savings, in addition to designing and reusing, focus on solutions and make profits from sufficiency, such as waste prevention. Reconciling the three types of economy is a formidable challenge. A shift in policy focus to promote time-bound business models that can transform a nation’s competitiveness.

Expressions of interest and the benefits of implementing the circular economy have put it on the political agenda. EU and national directives arouse the interest of the regions, which regrettably do little on their own initiative, but by means of recommendations and legislation. Nevertheless, there are

Table 1. Principles of circular economy

<b>Principles of circular economy</b>	1 – Preserve and enhance natural capital – all the assets that nature offers without human intervention (the quality of air, water, climate, soil, natural landscape, mineral resources, diversity of ecosystems, flora).
	2 – Closing the loops – production and consumption can be self-sustaining, part of a closed economic cycle, without waste, avoiding the disposal of goods and resources, with the aim of prolonging their life indefinitely.
	3 – Circulating products at the highest level of usefulness – focusing on reuse and refunctionalisation of resources is more cost-effective than recycling. It is a matter of adapting, transforming, in a way which makes circular economy profitable.
	4 – Promote a new social paradigm – to promote changes in behaviours, attitudes and ways of thinking, in society, so that we are users instead of consumers.

Source: Own elaboration based on information available in CCPE (2015).

examples in the Regional Commissions Coordination that translate into strategic plans. For example, Lemos (2018) published studies for a RICA region: Resilient, Intelligent, Circular and Attractive, in the region of *Lisboa e Vale do Tejo*. It is a collaborative platform for sharing knowledge and possible support for its transfer and adaptation to other locations, cities or even regions.

## Social Economy

The social economy is made up of organizations whose social objective is the satisfaction of needs of general interest. It is present in the sectors of education, social services, health care, insurance, banking, agriculture, tourism, culture, sport, etc. The Basic Law of the Social Economy (2013) defined the typologies of entities by legal nature, identified in Table 2. It is in this different form of economy that Demoustier (2001) sees “irreducible” characteristics, showing that one can undertake together with others, cooperate at work, encourage each other in difficulty, invest one’s own money without forgetting to be supportive.

Coheur (2015) points out that the growth potential of the social economy at a time of economic and social crisis has been highlighted on several occasions. It is a model of resilience and continues to develop while other sectors face difficulties. It reflects the need for an economy that reconciles the social, economic and financial dimensions, manages to generate wealth and is assessed not only in terms of its financial capital, but also, and above all, by its social capital. The objectives are not double-digit profitability and profit, but the contribution to the general interest, social cohesion and well-being of our societies.

On the other hand, Garrido (2016) considers that in Portugal and other countries, the historical cycles of the social economy correspond, as a rule, to the chronology and nature of political regimes, in which there is a close (sometimes tense) relationship between the institutionalisation of public social policies and the social protection dynamics of the associative world.

According to the European Economic and Social Committee - EESC (2017), it is one of the pillars of the European social model and plays a key role in combining profitability and solidarity, creating quality jobs, strengthening social, economic and territorial cohesion, generating social capital, and promoting active citizenship, putting people first and supporting sustainable development and social, environmental and technological innovation. The European Commission notes that there are two million social economy organizations, or 10% of all european organisations. They employ more than 14.5 million europeans, that is, 6.5% of the European Union’s working population (Coheur, 2015). The methodology shows the representativeness of the social economy in the region, which justifies the interest of this research.

## Smart Cities

Komninos (2002) states that the concept, when it emerged, did not distinguish cities from intelligent regions. According to this author, they combine the digital environment and real communities with a high level of knowledge; they are limited to a certain geographical area that promotes knowledge sharing; and they are based on an infrastructure based on information and communication technologies that optimize knowledge management.

But they should not be limited to the digital environment or to web platforms that provide services or information. They should take advantage of the interaction of citizens and the advantages that this interaction provides, through all the technology that facilitates the interaction. For this reason, they add three fundamental areas of action, in which the main objective is to create conditions of sustainability, improve the living conditions of the population and foster the creation of an intelligent and creative economy through management based on data analysis, as exemplified in the following figure.

Smart city programmes and projects are emerging around the world as a new urban paradigm and as a response to the problems currently facing urban spaces, such as climate change, the economic crisis and social exclusion (Selada & Silva, 2013).

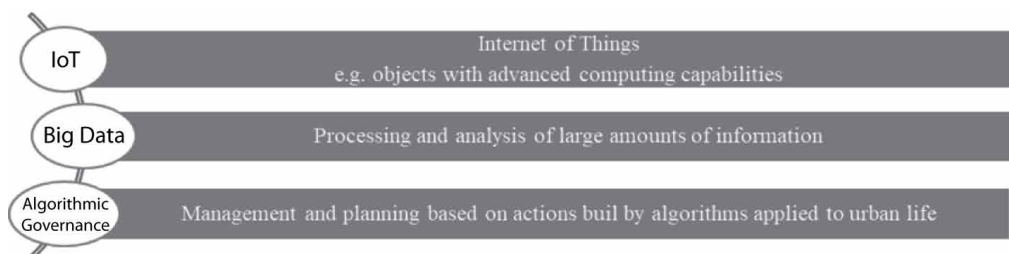
The report focused on the development of a ranking of medium-sized smart cities, considers six key pillars in a smart city: smart economy, smart people, smart governance, smart mobility, smart environment and smart way of life (Ranking of European Medium-sized Smart Cities - Final Report, 2007).

The same study, cited by Selada e Silva (2013) mentions that the smart economy refers to the economic competitiveness of cities, integrating issues associated with innovation and entrepreneurship. The pillar of intelligent people refers to the level of qualification of human resources, openness and the level of social interactions. Smart governance includes aspects related to public participation, services to citizens and the functioning of public administration. Local and international accessibility of cities and the information and communication technology network are the main components of smart mobility. The smart environment is defined by the attractiveness of natural conditions, environmental protection and resource management. Finally, the smart way of life pillar integrates issues related to quality of life, such as culture, health, safety, tourism and housing.

There are examples of cities around the world eager to use the smart city citation emphasizing this label for self-promotional purposes. In addition to assuming that there is a positive impact of information technologies on urban form, the brand also calls for a harmonious high-tech future. Therefore, it can be affirmed that, under the emphasis on human capital, social learning and community building, a political agenda of “high-tech urban entrepreneurship” is established (Hollands, 2008).

Examples of intelligence solutions in the region of *Trás-os-Montes* are more or less integrated, promoted by private business entities or by public entities (Intermunicipal Community - CIM), in areas of urban mobility, charging infrastructure for electric vehicles, promotion of alternative modes of transport, real-time traffic control systems, water and waste management, and governance (CIM Terras Trás-os-Montes, 2014).

Figure 1. The three main areas of the smart concept in regions (Source: Own elaboration based on the information available in the Cities Forum (2018))



## Sustainable Development

While the concept of sustainability is a relatively new idea, the movement has its roots in social justice, conservatism, internationalism, and other movements of the past with rich histories. By the end of the 20th century, many of these ideas had come together in the call for “sustainable development” (University of Alberta, 2019).

In 1983, the United Nations elected Norwegian Prime Minister Gro Harlem Brundtland, an international leader in sustainable development and public health, to lead the new World Commission on Environment and Development. In 1987, the “Brundtland Commission” released its final report, *Our Common Future*, which concluded that sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs. The notion of development is enriched by other components that relate it to human capital and social capital, being measured with broader indicators such as education, longevity and health, resulting in more complex indexes such as the Human Development Index (HDI), developed by the UN.

Indeed, as stated by the Business Council for Sustainable Development (2019), sustainable development is increasingly linked to the quality of life and well-being of people, and involves not only the economic, environmental and social aspects, but also spatial, territorial, cultural and political aspects. It is therefore considered that this concept is strongly related to the other concepts of circular economy and smart economy, and should be present in this study, which also frames the social economy in a territory that is intended to be smart.

The 2030 Agenda for Sustainable Development of the United Nation consists of numerous Sustainable Development Goals (SDGs) and was approved in September 2015 by 193 members. These goals result from governments and citizens around the world working together to create a global model for ending poverty, promoting prosperity and well-being for all, protecting the environment and combating climate change.

Bearing in mind that social economy entities are crucial for invoking most of the sustainable development objectives of the 2030 Agenda; that reflection on the research objectives can be crucial for changes in organizations’ behaviour; it is estimated that the social economy will take measures to incorporate the circular, sharing and smart economy before the measures become a normative or legislative imposition.

## MAIN FOCUS OF THE ARTICLE

*Terra Quente Transmontana* includes five municipalities in the northeast of *Trás-os-Montes* and is located in the region of northern Portugal. In the last administrative classification of territorial units for statistical purposes, four of these municipalities are part of the Intermunicipal Community of Terras de Trás-os-Montes (Alfândega da Fé, Macedo de Cavaleiros, Mirandela and Vila Flor), and one of them (Carrazeda de Ansiães) is part of the Intermunicipal Community of Douro.

## Population Definition for Quantitative and Qualitative Research

The bibliographic research focused on the key concepts and led to the typification of the social economy entities of the region, to define the population to be surveyed. In the legal aspect, they are framed in the Social Economy Basic Law (2013), in the financial aspect they are organized under the terms of the European System of Accounts 2010. We opted for the combination of the two criteria to typify the population.

According to the CESE (2017), in recent decades, academic institutions, national statistical institutes and governments have been working on the need for statistics to measure the weight of the social economy, in the 28 Member States of the European Union. The Centre for Public and Social Economy Studies (2006) has developed a methodology: the Handbook for the preparation of satellite accounts for social economy enterprises, alongside the United Nations Handbook for satellite accounts for non-profit institutions.

According to the National Statistics Institute (INE) (2019), the social economy in 2016 represented 3% of the national GVA, 5.3% of wages and 6.1% of paid employment in the national economy. The North region has the highest number of entities in the social economy (23,450), with 7 entities per thousand inhabitants. The National Statistics Institute does not present information by municipality/county, so other sources were used to assess the representativeness of social economy entities and the workers they employ in the region. The data confirmed the relevance of the sector, not only in terms of employment and wealth, but also in social terms, stressing that these organizations play an important role in social and territorial balance, and in the fight against poverty (National Statistics Institute, 2019).

In the region, in 2016, 86 social economy entities were reported employing 1,602 workers but including only those that report information or that have staff. They represent 5.4% of companies that comply with the legislation reporting the number of workers they employ, which represents 20.1% of workers employed in 2016 (GEP, Ministry of Labour, Solidarity and Social Security, 2016).

On the other hand, 62 registered *Casas do Povo*, Cooperatives and Private Social Solidarity Institutions (IPSS) were identified (Direção geral da Segurança Social, 2019). This source includes only those who have registered and exclude those who do not have social facilities or a reason that makes the registration unnecessary.

At the same time, the accredited cooperatives were also consulted on the CASES Portal (2019), which proves the legal constitution and the regular functioning of the cooperatives, according to the Legal Framework of the cooperative sector. Eight accredited cooperatives were identified in the region under study. This source does not include those that did not proceed with the accreditation, either because they did not meet the accreditation requirements, or for another reason.

To conclude, the investigators opted for the identification of social economy entities at regional level, which are part of the Local Social Action Council of the Social Network by municipality/county. It was considered to be the most comprehensive local platform for the object of study. To this end, the five local authorities of the region, who chair the Social Network of each municipality, were consulted in writing. Table 3 represents the 180 entities distributed by municipality.

## DATA COLLECTION PROCEDURES

The application of referenced questionnaire surveys to employees of social economy organisations and semi-structured exploratory interviews to top managers of social economy organizations were considered. For the treatment of the studies, we opted for non-probability sampling, by convenience.

The questionnaire was sent by email to 197 institutional contacts, with requests for participation and dissemination, during the period between July 3 and September 24, 2019, and 70 responses

Table 2. Proposal of typification of the population under study

Identification / quantification option	Sources	Advantages of the study	Study limitations
By legal nature	GEP/MTSSS	Quantify n° of entities and n° of employees	Absence of reporting by entities that do not have workers
By official registration	Social Security and CASES	Quantify n° of entities registered in national databases	No application for registration by some entities
By network integration	Local Council of Social Action / Municipal social network	Quantify n° of entities integrated in the Municipal Social Network	Absence of integration by some entities

Source: Own elaboration

Table 3. Proposal for a combination: legislative/financial framework by typology

Institutional Sector		Framework typology	Total
SEC 2010		Basic Law of Social Economy (article 4th)	
Non-financial corporations (S11)	a) Cooperatives;		3
	c) Nacional and local Charities;		5
	e) Private charities not covered by the above points;		28
	<i>subtotal</i>		36
Financial corporations (S12)	b) Mutual associations;		0
	<i>subtotal</i>		0
General government (S.13)	Central, regional, local government		115
	<i>subtotal</i>		115
Families (S14) and Non-profit institutions serving families (S15)	d) The Foundations;		0
	f) Altruistic associations operating in the cultural, recreational, sports and local development fields;		3
	g) The entities covered by the community and self-managed sub-sectors, integrated under the terms of the Constitution in the cooperative and social sector;		0
	h) Other entities with legal personality that respect the guiding principles of the social economy provided for in Article 5 of this law and are included in the social economy database.		26
	<i>subtotal</i>		29
<b>Total number of entities that integrate the Social Networks of the region under study</b>			<b>180</b>

Source: Own elaboration based on information available in the Social Network of the Municipalities of Alfândega da Fé, Carrazeda de Ansiães, Macedo de Cavaleiros, Mirandela and Vila Flor (Composition of the Social Network) and in the List of IPSS and Cooperatives (2019).

(38.88%) were received. The Creative Research Systems platform (2019) was used to determine the confidence interval. Taking into account that there is no previous study, the standard deviation used was 50%-50%, that is, we worked with the pessimistic hypothesis. For a confidence level of 95% in a population of 180 entities, with 70 respondents, the confidence interval was calculated, which translates into a sample error of 9.18. According to Doane and Seword (2014), the level of accuracy or acceptable error is less than 10.0%, which is considered adequate for the sample size.

Its creation corresponds to several questions and research hypotheses set out in point 4 and it aims to provide answers to four domains: characterize the respondents, levels of skills, positioning on issues of circular economy and knowledge of the entity.

In regard to the qualitative approach, we opted for exploratory research interviewing five people in charge, one for each type of entity, in order to determine the level of knowledge of the organisation, the level of assessment of the organisation and the level of planning in partnerships, regarding the history, habits and predisposition for the sharing of social economy organizations. The three criteria for the selection of the sample were: being active managers, of dynamic organizations, with regional and out-of-region impact, and with an adult age of less than 70 years.

## DATA PROCESSING

For the quantitative study, and to meet the specific objectives and respective research hypotheses, the following statistical techniques were used:

- Techniques of exploratory descriptive analysis to answer the objectives and research questions. To this end, graphs and tables of absolute and relative frequencies, calculations of measures of



central tendency (mean) and dispersion measures (standard deviation) of the answers obtained for the questions under analysis were produce;

- Techniques of inferential analysis to respond to research hypotheses. Tests to compare means and/or medians were used, namely the application of non-parametric tests because one of the assumptions of applying parametric tests was violated (number of observations per independent sample equal to or greater than 30 observations and/or not following normality, and/or homogeneity of variance was not verified) (Maroco, 2018). Thus, for two independent samples the Mann-Whitney test was applied and for three or more independent samples the Kruskal Wallis test was applied. In order to study the relationship between seniority/ professional experience and the degree of importance attributed to resource sharing, Pearson’s correlation coefficient was used. It should be noted that for the analysis of this coefficient and to affirm the existing relationship of intensity, the information referred to by Evans (1996) was based on: very weak relationship ( $r = \pm 0.00$  to  $\pm 0.19$ ); weak relationship ( $r = \pm 0.20$  to  $\pm 0.39$ ); moderate relationship ( $r = \pm 0.40$  to  $\pm 0.59$ ); strong relationship ( $r = \pm 0.60$  to  $\pm 0.79$ ), and very strong relationship ( $r = \pm 0.80$  to  $\pm 1.00$ ). In all the hypothesis tests performed, the level of significance adopted was 5% for decision making.

In regard to the analysis and treatment of data from the exploratory interview, it was used an audio recorder, as well as the records written in the script of each interview.

## RESEARCH QUESTIONS AND HYPOTHESES

Table 4 outlines the research methodology in relation to the general and specific objectives 2, 3 and 4, for which specific research activities were developed, leading to answer questions and research hypotheses.

Once the research methodology was defined, the formulation of investigation hypotheses (IH) and investigation questions (IQ) was followed to meet the defined objectives.

Based on the information presented in Table 5, it is possible to conclude that there is not enough statistical and statistically significant evidence to affirm the existence of gender, age, typology or

Table 4. Definition of research methodology

<b>General objective: To assess the predisposition of the collective agents which are part of the social economy to implement the principles of the circular economy, in the context of services sharing, in the region of Terra Quente Transmontana.</b>	
<b>Specific objective 2.</b> Verify whether the interest in sharing is related to the skills that the agents have, based on information from themselves, which leads to the implementation of a training/information strategy.	Quantitative research applied to regional and local agents that are part of the Social Network of each municipality/county in the region under study. Survey by questionnaire whose respondents were the collaborators of social economy organizations in the region.
<b>Specific objective 3.</b> Analyze historical behaviors on resource sharing, based on testimonies of relevant agents.	Qualitative research through a semi-structured exploratory interview survey of five top managers of social economy organizations in the region under study who represent each of the legal profiles: - cooperatives; mutualist associations; charities; foundations; private social solidarity institutions ( <i>IPSS</i> ); altruistic associations operating in the cultural, recreational, sports and local development fields; and other entities with legal personality that respect the guiding principles of the social economy.
<b>Specific objective 4.</b> Verify the interest of social economy entities in sharing resources among themselves, obeying the principles of the circular economy, and that lead to a common strategy of action, based on testimonies of those responsible for the organizations.	

Source: Own elaboration.

Table 5. Statistical tests and decision for the investigation hypotheses of the general objective (GO)

<b>GO: Is there a predisposition of social economy actors to the circular economy in the context of resource sharing?</b>			
<b>Investigation hypothesis</b>		<b>Statistical test</b>	<b>Decision</b>
IH <sub>1</sub>	There are gender differences in the degree of importance of resource sharing	Mann-Whitney	<i>p-value</i> = 0,6 Does not corroborate
IH <sub>2</sub>	There are age differences regarding the degree of importance in resource sharing	Kruskal-Wallis	<i>p-value</i> = 0,253 Does not corroborate
IH <sub>3</sub>	There are differences in entity typology regarding the degree of importance of resource sharing	Kruskal-Wallis	<i>p-value</i> = 0,58 Does not corroborate
IH <sub>4</sub>	There are differences by function in the degree of importance of resource sharing	Kruskal-Wallis	<i>p-value</i> = 0,546 Does not corroborate

Source: Own elaboration.

function exercised in the entity differences regarding the degree of importance in resource sharing, which does not confirm the general research objective. In summary, it cannot be concluded that any of these four research hypotheses have an influence on the predisposition of social economy agents to the circular economy in the context of resource sharing.

It should also be noted, although with slight differences, that male individuals, individuals aged between 30 and 39, local government employees and intermediate managers attributed greater importance to the sharing of resources. It should also be noted that less importance was attributed to the sharing of resources by female individuals, by older individuals, by employees of other entities and by employees without management functions.

Table 6 explains the rationale for formulating research hypotheses, the statistical technique used and the decision to respond to specific objective 2 (SO.2).

The analysis of the results shows that there is no positive relationship between seniority/ professional experience and the degree of importance attributed to the sharing of resources. Therefore, *p-value*=0.496 is higher than the assumed significance level (5%), which was not statistically significant. However, it was interesting to observe that there was an inverse relationship, that is, as seniority/ professional experience increased, the degree of importance attributed to the sharing of resources decreased. This indicates that there is a reduction in the importance attributed to the sharing of resources as professional experience is acquired, and that employees with less professional experience are more open and predisposed to sharing resources.

Table 6. Statistical tests and decision for investigation hypotheses of objective 2

<b>SO.2: Verify if the interest in sharing is related to the skills that agents have, based on information from themselves, which leads to the implementation of a training/information strategy.</b>			
<b>Investigation hypothesis</b>		<b>Statistical test</b>	<b>Decision</b>
IH <sub>5</sub>	There is a direct positive relationship between seniority/ professional experience and the degree of importance attributed to the sharing of resources	Pearson's correlation	<i>r</i> =-0,083 ( <i>p-value</i> =0,496) Does not corroborate

Source: Own elaboration.

An investigation question was formulated to answer the specific objective 3 (SO.3). Table 7 shows the relationship between the research question and the defined objective, identifying the statistical test performed and the decision.

Based on the information obtained for eight items of resource sharing, it is possible to conclude that there is not enough statistical and statistically significant evidence to state that social economy organizations reveal habits of resource sharing, not confirming the investigation question. In summary, it cannot be concluded that the historical sharing behaviours are relevant or that they influence the predisposition of social economy agents to the circular economy, in the context of resource sharing.

Table 8 summarizes the rationale for formulating the investigation question, the statistical technique used, and the decision to respond to specific objective 4 (SO.4).

For this specific objective, the quantitative research serves only as a study reference, in terms of sustainable behaviours by managers, evaluation of the organization and the mandatory documentation. Qualitative research complements the answers obtained.

In Table 9, the statistical test of IQ<sub>2</sub> is analysed. In order to verify the socially responsible behaviour, the behaviours regarding rejection, repair, refunctionalisation and recycling of goods were grouped.

It can be concluded by observing the answers that in this sample, employees who do not have management functions have higher socially responsible behaviours. They reject less (3.03%), and promote less repair (27.27%), but refunctionalize and recycle goods by 69.69%. Managers reject more (8.11%), promote more the repair of goods (40.54%) and, on the other hand, refunctionalize and recycle the goods in a smaller percentage (51.35%). On the other hand, in managers, refunctionalisation (21.62%) and recycling (29.73%) are lower percentages than those employees who do not have management functions, respectively 33.3% and 36.36%.

Looking at the table it can be seen that globally behaviours tend to be socially responsible. But it cannot be concluded that managers are more predisposed to the circular economy than employees, that is, it cannot be confirmed that the hierarchical level increases the ability to define socially responsible behaviours.

**Table 7. Statistical tests and decision for investigation hypotheses of objective 3**

<b>SO.3: Analyse historical behaviours on resource sharing, based on testimonies of the relevant agents.</b>			
<b>Investigation question (IQ)</b>		<b>Statistical test</b>	<b>Decision</b>
IQ <sub>1</sub>	Social economy organizations reveal habits of resource sharing	Record matrix (8 items) [Mean ± Standard Deviation]	45,71%±0,447

Source: Own elaboration.

**Table 8. Statistical tests and decision for investigation hypotheses of objective 4**

<b>SO.4: Verify the interest of social economy entities in sharing resources among themselves, obeying the principles of the circular economy, and that lead to a common strategy of action, based on testimonies of those responsible for the organizations.</b>			
<b>Investigation question (IQ)</b>		<b>Statistical test</b>	<b>Decision</b>
IQ <sub>2</sub>	The hierarchical level increases the ability to guide socially responsible behaviour	Table of absolute and relative frequencies [Mean ± Standard Deviation]	30,63%±0,095

Source: Own elaboration.

Table 9. Sustainable and circular behaviour by function

Behaviour	Managers		Non-managers	
	Number	%	Number	%
Rejection	3	8,11%	1	3,03%
Repair	15	40,54%	9	27,27%
Refunctionalisation	8	21,62%	11	33,33%
Recycle	11	29,73%	12	36,36%
<b>Total</b>	<b>37</b>	<b>100,00%</b>	<b>33</b>	<b>100,00%</b>
<b>Mean</b>		<b>30,63%</b>		<b>32,32%</b>
<b>Standard Deviation</b>		<b>0,095</b>		<b>0,046</b>

Source: Own elaboration.

### Issues, Controversies, Problems

Issues such as the sharing, circular, performance or smart economy are on the political agenda and raise the interest of social organizations, yet few do so on their own initiative, but rather through recommendations and regulations. Leadership and governance, along with specific management and organisational skills, are extremely important factors that can be integrated into training processes at any level of education. Leitão (2015) states that an excellent idea is of little value if it is not put into action. And in an increasingly fierce and competitive business environment, no organization can afford to dismiss good ideas, especially not to implement them.

The promotion of new models of territorial governance based on collaborative networks needs to find favourable conditions and committed actors to develop and grow. Cultural specificities and resistance to change can be obstacles to the introduction of new models of action. Local Social Action Networks are led by local elected representatives, who have information on accreditation, registration and empowerment of organizations in national databases and can consider criteria for inclusion and involvement of organizations in the networks.

The lack of cooperation of the organizations' managers in disseminating this study to their employees limited the results. As well as the territorial coverage that restricts the impact to a subregion. A survey with more participatory quantitative data would result in a more consistent study.

The design of any medium- and long-term action strategy is based on a baseline diagnosis, which should incorporate official, credible, accessible and available data for consultation by any citizen. If the sources of information are not made available by municipality, for the use of any organization and any economic activity, the desired development of rural areas is more difficult to achieve due to lack of diagnostic information.

### CONCLUSION

This work is dedicated to the relationship between the circular economy and the social economy because it is at this intersection that the richest and most inspiring models for achieving what is called sustainable development are found. It was understood that an exploratory study could be used to assess the predisposition of social economy entities to the management of shared resources in *Terra Quente Transmontana*. In the studies carried out it was concluded that there is a predisposition of these organizations for the management of shared resources in the region.

To achieve the first objective, which served as a theoretical basis for the research problem, Barbosa (2019) agrees when he states that the social economy has been, in many cases, a pioneer in the implementation of circular economy strategies. In the value creation model of these organizations,

we can see that the resources used are mainly local and regional, and that they develop an intensive activity in human resources. In fact, the study demonstrated the impact and economic importance of social economy organizations, at the national, regional and local levels. The representativity of the social economy in the region under study was analysed through various national and local sources (GEP/MTSSS, INE, Social Security, CASES and municipal Local Social Action Networks), with 180 organisations representing 5.4% of companies registered in 2016 and representing 20.1% of the total number of people employed in the region. It is also concluded that not all entities, including those registered in official social economy sources, are part of the partnership constituted by the Social Networks of the municipalities in which they intervene. It may serve as a reflection for updating the composition of that discussion platform, and reviewing the criteria underlying the constitution of the network of partners.

For better understanding of the problem and general objective, investigation hypotheses and questions were based on the influence of gender or age of employees, typology of entity or function performed in it, regarding the degree of importance in the sharing of resources. We concluded that there is not enough statistical and statistically significant evidence to affirm the existence of differences by gender, age, typology or function exercised in the entity regarding the degree of importance in resource sharing, thus not confirming the general investigation objective.

In addition, it was decided to deepen the research with two questions on the interest of managers in sharing management models and the availability of young people for sustainability behaviours, in terms of end-of-life assets (one of the aims of the circular economy). It was concluded that there is not enough statistical and statistically significant evidence to affirm that management models are given greater importance in the interest of managers sharing, or that young people are more available to adopt sustainable behaviours, not confirming the research questions. In summary, it cannot be concluded that management functions or age have an influence on the predisposition of social economy actors to the circular economy in the context of resource sharing.

Moving on to the second research objective, investigation hypotheses and questions were formulated to verify whether the interest in sharing would be related to academic skills or professional experience. It can be stated that there is no positive relationship between seniority/professional experience and the degree of importance attributed to the sharing of resources. However, there was an inverse relationship, indicating that there is a reduction in the importance attributed to the sharing of resources as professional experience is acquired, and that employees with less professional experience are more open and predisposed to the sharing of resources. In addition, regarding the skills, it was decided to ascertain whether the skills of social economy employees are decisive for the interest in the circular economy, in terms of refunctionalisation, repair or recycling behaviours, and the question was also not confirmed.

The analysis of historical behaviours resulted from qualitative research, which showed, as Amaral (2017) stated, a new economic-social paradigm that has been changing the entire socio-economic reality as it was known. The recognition of the economic and business aspect of third sector organizations, along with their social mission is possible and essential for the sustainability of these organizations. If, on the one hand, they fulfil their social mission, complement the role of the State in the field of social support, and enter into agreements to meet social needs, they should also be recognised for their capacity and management autonomy in terms of social responses in the nonsubsidised business field. However, the statistical tests did not allow to conclude that the historical sharing behaviours are relevant or that they influence the predisposition of social economy agents to the circular economy within the scope of resource sharing. It appears from the results of the research that there is a predisposition of these organizations to the circular economy, within the scope of service sharing, and based on a management model, but it is also concluded that they do not know how to operate it, they fear incompatibilities with the entities that protect them and the violation of legal norms. The weaknesses identified in this research work may compromise the impact of their activities and the development of their future activities. The specific training of employees should

be promoted, as well as the increase of skills in matters of strategic planning, strategic management, taxation, marketing and communication.

Finally, in order to verify the interest in sharing resources among themselves in the future, which lead to a common strategy of action, obeying the principles of circular economy, questions were formulated as to the ability (for behaviours of refunctionalisation, repair or recycling of goods) to relate to the hierarchical level, with the evaluation of the provision and knowledge of the organization regarding management documents. It was concluded that the hierarchical level does not increase the ability to define socially responsible behaviours, that managers evaluate the organization better than the employees, but that all consider the overall provision positive, and that taxation is the greatest weakness in knowledge of the obligation to prepare management documents. Tax planning is a preventive and important behaviour in the sustainability of organizations and should be present in management decisions.

In future researches, some issues such as solidarity-based taxation, specific to social economy organizations that reconcile the business and commercial aspects with the social support aspects, can be addressed. Society, the State and I&I are open to new models of governance, to new instruments of policy and territorial management, so that knowledge of the territory can be promoted to support the economy. The circular economy, the performance and intelligence economy are the metabolism of the economy in an open territory, which historically is a territory of sharing. Socio-economic developments and new community behaviour suggest lines of research and participatory governance development projects.

Similarly, European support programmes value projects which demonstrate innovation in territories and impact on public policies. The outline of an investment project promoted by a formal and organised partnership of *Terra Quente Transmontana* social economy organizations, designed by all stakeholders, on a technological I&D basis can fulfil the requirements to be considered an example or a pilot project of resource management, through a management platform.

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