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**Circular Economy as the Pathway to Sustainable Future:
A Case Study on ALTRNTV Shop**

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Abstract

Current societies rely primarily on increased consumption behaviour, this type of conduct being in contradiction with the finite character of resources and the planet's ability to sustain life. The transition from the linear economy to the circular economy is thus to be desired and, in this sense, ongoing commitment is required from the community and decision makers. At both the European Union level as well as worldwide, various action plans and measurement indicators have been launched to enforce circularity, which stands as a main element of the Sustainable Development Goals. Within this context, this research aims to describe how a circular economy retail business in Bucharest, Romania, aligns with the Circular Economy Monitoring Framework indicators. Moreover, it identifies additional elements of circularity and positive societal impact generated by the business. To achieve the objective, the research methodology utilises qualitative research methods, specifically a descriptive case study. The data was collected through an in-depth interview and from both internal and public information available between 2022 and 2024. To the best of authors' knowledge, this is a first research on Romanian-based startups in the circular economy, and it maps how much of the circular economy practices can be implemented in the current context in Romania. The analysis allowed us to describe how this startup is supporting the circular economy manufacturing sector and it covers all five large categories of indicators of the Circular Economy Monitoring Framework. Although the intention of this research was not specifically to highlight other significant societal impacts, the in-depth interview responses and the study of various internal and public materials revealed numerous practices with a high social impact. Future research should aim to understand how circular economy practices implemented in businesses create positive social impact.

Keywords: circular economy framework, business in the circular economy, circular manufacturing, Romanian startup, Sustainable Development Goals.

JEL Classification: Q01, Q56, O35.

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1. Introduction

In the current society, reflecting a constant requirement for enhanced products, the incremental consumption trend no longer adheres to sustainability and hence circular economy is a primary point that addresses this issue (Lakatos et al., 2018; Geissdoerfer et al., 2017; Korhonen et al., 2018). Since design holds a paramount importance in the circular economy, various tools and means are available at the moment to sustain the switch from linear to circular functioning (Rocha et al., 2023).

Steps towards circularity have been initiated by the European Union, the reduction of greenhouse gas emissions being intended to take place by 55% until 2030, while the pursuit of carbon neutrality is expected until 2050 (Sharmina et al., 2023), with asymmetrical progress of EU states (World Bank, 2022), in the switch to the circular economy, Romania scoring the lowest circular materials use at 1,3%.

Research acknowledges the concern of governments, organisations and civil society entities in addressing the attainment of the Sustainable Development Goals (SDGs) (Kleespies & Dierkes, 2022; Pedersen, 2018; Valverde & Avilés-Palacios, 2021). The United Nations formulated 11 targets and 13 indicators for SDG 12 - Responsible consumption and production (Arora & Mishra, 2023; Our World in Data, 2023). SDG 13 - Climate Action acts on the improvement of resilience against climate risks, the incorporation of measures in national action plans, and boosting awareness on the reduction of climate change effects (Campbell et al., 2018). The urgency of this change appears even more relevant as Danu and Nedeff (2015) highlight that every EU citizen produces over 4,5 tons of waste every year, this requesting a change in consumers' and companies' environmental conduct. Governments are concerned with action plans to foster the propagation of circular economy (Dragomir & Duțescu, 2022), such as the European Green Deal, the European Circular Economy Action Plan (Dumitrica et al., 2023; European Resource Efficiency Knowledge Centre, 2019; Rodino, 2023), the Sixth Environment Action Programme, the Thematic Strategy on the Sustainable Use of Natural Resources, the Roadmap to a Resource Efficient Europe (European Academies Science Advisory Council, 2015; Mazur-Wierzbička, 2021), the Ecodesign Working Plan, and the Raw Materials Scoreboard (Baldassarre & Saveyn, 2023).

The aim of this research is to illustrate how a Bucharest-based startup in the circular economy effectively employs circular economy practices to develop its operations and support the Sustainable Development Goals, aligning to the Circular Economy Monitoring Framework indicators.

2. Problem Statement

Global-wise, the preoccupation for natural resources' depletion is manifested at an increasing pace, drawing attention to the need for the shift from the take-make-consume-throw model, specific to the linear economy, to the reduce-reuse-recycle-redesign model, connected to the circular economy (Androniceanu et al., 2021; Danciu et al., 2019; Dobre-Baron et al., 2022). In addition, the need for clear circular economy policies is shaped by the fact that humanity annually uses 60% more resources than what the Earth can regenerate, with forecasts warning that until

2050 sustainability could be severely threatened by increased population and consumption behaviour (OECD, 2023).

Placing the focus on the textile and apparel industry, Staicu and Pop (2018) recognise it as being among the heavily polluting industries and underline that the reconfiguration of production and consumption are required. Engagement from consumers, hence adaptation of their conduct in line with circular economy practices, is a key matter for a functional circular economy (Karpova et al., 2020; Matová et al., 2019; Ungerman & Dědkova, 2024). Yet, consumers' role and behaviour in the circular economy are poorly researched themes (Vidal-Ayuso et al., 2023).

Circular economy is defined by resource usage optimisation, the safeguarding of sustainable development needs, and the ultimate desired creation of zero waste (Burlacu et al., 2020; Iuga, 2016) by employing closed-loop models (Osobajo et al., 2022; Vermeşan et al., 2020), mimicking the existence of natural ecosystems (Negrei & Istudor, 2018). As a regenerative system (Daño et al., 2020; Herrero-Luna et al., 2022; Sterie et al., 2022), it is an alternative for the creation of an equilibrium between growth and environmental resource constraints (Business Review, 2024; Căuţişanu et al., 2018; Consumer Insight Action Panel, 2022; Valencia et al., 2023). Social enterprises are remarkable actors within circular economy, where the European Structural Funds grants are a prerequisite for circular social economy in Romania (Barna et al., 2022), where, according to Păunescu (2018), new social innovation models arise and substitute the traditional innovation labs.

The change towards a circular economy involves barriers such as the absence of infrastructure, change opposition, poor performance indicators, and financial aspects, whereas some catalysing factors are the altered competitiveness, the creation of industry partnerships, and the presence of innovation and networks (Piciu, 2019). Also, the transition is slowed down by an absence of measurement scales and standardised metrics (Guarnieri et al., 2023), standardised assessment methods playing a great role in sustaining decisions for sustainable development (Oliveira et al., 2021).

2.1 Territorial Standing concerning Circular Economy: Romania

In Romania, the private investments in the circular economy grew from 1013.2 million euros in 2010 to 1699.6 million euros in 2019 (Zota et al., 2022). However, research (Crişan et al., 2019) claims that Romania holds the last places concerning the waste recycling rate, with a recycling rate of 11.3% in 2020, a share below the goals of the European Union (Mocanu et al., 2024). As for the total recycling rate of plastic packaging, the research of Jora et al. (2020) notes that Romania recorded a value of 46.4% in 2016, going close to the 2030 EU target of 55%, but meeting the new goals will involve difficulty.

A report by the European Topic Centre on Circular economy and resource use (2022) also conveys downgrading statistics on the standing of Romania with respect to the percentage usage rate of circular materials, that followed steady decline in the observation period 2011-2020, by opposition to the uprising trend proved by the EU states. Additionally, the computation of an aggregate waste

indicator by Steliac (2020) based on indicators of waste generation and waste recycling rates for EU countries for years 2010, 2012, 2014, and 2016 depicted that Romania was positioned in the top 14 EU states only in 2016. Following the above data, it is clear that Romania needs to heavily improve its approach toward circular economy. In this sense, Basarabă and Cojocaru (2015) propose directions for a country’s economic policy to converge with the circular economy: enhancing raw material purity to permit easier recycling; encouraging repair-remanufacture processes to generate employment opportunities; forming a multisectoral team; setting up a motivating economic context in terms of fiscal considerations; launching the Romanian ECO LABEL and an online research hub for universities and other entities in the circular economy field. Circular economy and social economy are tools utilised to correct social and environmental problems (Bellemare et al., 2022). To enhance the potential of setting up social enterprises in the circular economy sector, Danciu et al. (2019) mentions the need to develop abilities for financing, project management, business plan creation and promotion, and practices and partnerships in circular economy.

Two circular economy legislative initiatives conducted at Romanian level are the National Government Plan 2021–2024, with the aim to minimise landfill waste by minimum 75 percent of all waste types until 2025 and to create a packaging deposit-return system. The National Plan for Investments and Economic Recovery 2020–2025 gives directions for the energy, economy, agriculture, and local development areas, ultimately creating convergence with EU countries in terms of GDP per capita (World Bank, 2023). According to Vermeşan et al. (2020), an increasing concern has been shown for the circular economy in Romania in the last years, however, the successful examples in this domain are scarce (Table 1).

Table 1. Circular economy initiatives at private level conducted in Romania

Organization	Description of the initiative
Employers’ Confederation Concordia	the publication of the “Circular Economy in Romanian Business” guide that conducts a presentation of circular economy programs initiated by organisations belonging to various fields e.g. hospitality, retail, banking
Ateliere Fără Frontiere	Romanian social enterprise tackling the social exclusion of vulnerable groups and advocating for employment integration
Viitor Plus	NGO running circular economy programs: Recycling Map, Atelierul de Pânză, RECICLETA, and EcoProvocarea
Terra Mileniul III	NGO operating programs pertaining to circular economy and environmental shielding
The Danube Goes Circular	circular economy platform fostering the communication and material trade between 16 partners in the Danube countries
GreenGroup	conducts the production of synthetic polyester fibers in Romania, based on 100 % recycled PET flakes and the collection, processing and recycling of EEE
ECOTECA	maps urban areas consumption, waste production and management
LanaTerm	production of building insulation on the basis of sheep wool
ecoHORNET	production of multi-system burners based on ecological combustion processes to generate biochar, gas, and oil
bonapp.eco	connects food suppliers and consumers to minimise waste
PRECIOUSCIRCUIT	jewelry production out of electrical and electronic equipment

Source: European Topic Centre on Circular economy and resource use (2022).

2.2 Territorial Standing concerning Circular Economy: the European Union

Worldwide, the concern for carbon neutrality and zero emissions acted as a catalyst for the embracement of circular economy practices (Banjerdpaiboon & Limleamthong, 2023; Serrano-Bedia & Perez-Perez, 2022). European practitioners and scientists have also become aware of the importance of circular economy (Försterling et al., 2023; RREUSE, 2024), and several plans have been initiated at the EU level to ensure circularity and reach carbon neutrality: the *Strategy for a Sustainable Built Environment*, that was published in 2020 and *A Clean Planet for all. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy* (Marek & Krejza, 2023). In 2018, the Circular Economy Monitoring Framework was initiated by the European Commission (European Environment Agency, 2024), its pillars being detailed in Table 2.

Table 2. The composition of the Circular Economy Monitoring Framework

Production and consumption	Waste management	Secondary raw materials	Competitiveness and innovation	Global sustainability and resilience
Material footprint	The recycling rate of municipal waste	The usage rate of circular materials	Private investments	Consumption footprint
The productivity of resources	The recycling rate of waste, not including major mineral wastes	The input rates for end-of-life recycling (aluminum)	Employed individuals	GHG emissions from activities of production
Green public procurement	The recycling rate of overall packaging	Imports from countries outside the EU	Gross value added	The reliance on material import
Total production of waste	The recycling rate of plastic packaging	Exports to countries outside the EU	Patents pertaining to the management and recycling of waste	The self-sufficiency of the EU in the case of aluminum raw materials
Waste production, not including major mineral waste	The recycling rate of WEEE that are separately collected	Intra EU trade		
Production of municipal waste				
Food waste				
Production of packaging waste				
Production of plastic packaging waste				

Source: European Environment Agency (2024).

3. Research Questions / Aims of the Research

In line with the literature insights previously delineated, the paper aims to answer to the following research question: “How does a circular economy retail startup located in Romania conduct its activities in line with the Circular Economy Monitoring Framework indicators?” The research question is constructed in line with the European Environment Agency (2024), which launched the Circular Economy Monitoring Framework in 2018, as a tool intended to foster circularity. In addition, the paper’s aim is built based on Mocanu et al. (2024) and Crişan et al. (2019), who note that circular economy still exists in the inception phase in Romania.

4. Research Methods

To achieve the objective, the research methodology utilises qualitative research methods, specifically a descriptive case study (Yin, 2018) of startup ALTRNTV Shop. The following key attributes of the case study methodology are underlined in this research (Priya, 2021):

M.1. Our case study involves a detailed study of the concerned unit of analysis within its natural setting, the context for the development of circular economy businesses in Romania (Table 1).

M.2. Since an in-depth study is conducted, case study research allows the authors the leeway to use any method of data collection which suits their purpose. For a sound, unadulterated, and unbiased study of the phenomenon under investigation, several techniques of data collection were used, such as in-depth interview and the study of documents internal procedures (related to ISO 9001, ISO 45001 and ISO 14001 the company has been certified for in 2023) and brochures, and all public data, text, and video material published about the business.

The data was collected as follows: the in-depth interview addressed to one of the startup’s co-founder was performed in March 2024 (Table 3) and the internal and public information about ALTRNTV is recent (2022 to 2024) (Table 4).

Table 3. In-depth interview questions

No.	Question
1	What does the startup ALTRNTV do for customers?
2	Who is behind ALTRNTV and what studies does the team have?
3	Why is ALTRNTV a startup in the circular economy?
4	What were the obstacles of opening such a startup?
5	Who financed this business that supports the circular economy?
6	How have customers received the circular products that you propose?
7	And the interior design of the space was made using circular practices. Which are these?

No.	Question
8	Is the packaging of the products also aligned with circular economy practices?
9	What are the plans to include other circular practices in the startup's operations?
10	How do you encourage sustainable product designers to expand their product propositions?

Source: authors' own processing.

Table 4. Sources for data collection

Type of data and number	Year
ISO 9001, ISO 14001, ISO 45001 ALTRNTV internal procedures	2023
ZIARUL FINANCIAR (6 Articles) Selection: Pagina verde. Daniela Staicu și Alina Țiplea au deschis în București ALTRNTV Shop, un magazin de haine și accesorii create de designeri români din materiale sustenabile	2022-2024
REVISTA IGLOO (1 article) Se deschide ALTRNTV, un spațiu dedicat produselor de design românesc sustenabile – igloo	2022, 2024
RETAIL.RO (1 article) ALTRNTV, spațiul social dedicat designerilor români, se deschide în București (retail.ro)	2022
IMPACT HUB BUCHAREST (1 article) ALTRNTV la Black Sea ClimAccelerator: Sustenabilitate, design, artă și cafea - Impact	2023
GREEN-REPORT.ro (1 article) Despre moda sustenabilă, cu ALTRNTV: Trebuie să schimbăm metodele de producție a materialelor și comportamentele - Green Report (green-report.ro)	2022
REVISTA ATELIERUL (1 article) https://www.revista-atelierul.ro/2022/11/28/despre-altrntv-cu-alina-tiplea-si-daniela-staicu/	2023
THE WOMAN (2 articles) https://thewoman.ro/voices-of-womentrepreneurs-o-voce-puternica-pentru-antreprenoriatul-feminin-dedicat-designului-sustenabil/	2022, 2024
ROMANIAN GREEN STARTUPS (1 article) https://activatech.tech/green-startups-romania-overview/	2023
BANISIAFACERI.RO (1 article) https://banisiefaceri.ro/educatie-stil-de-viata-si-wellness-antreprenoriatul-feminin-romanesc-subiect-de-studiu-la-scoala-in-saptamana-verde-si-saptamana-altfel/	2024
YOUTUBE (2 videos) https://www.youtube.com/watch?v=ubklw8Zqaeo&t=3s	2024
Brochure about ALTRNTV, in English language (2 articles)	2023, 2024

Source: authors' own processing.

5. Findings

The research particularly focused on describing how a circular economy retail business based in Romania aligns to the Circular Economy Monitoring Framework indicators (Table 5).

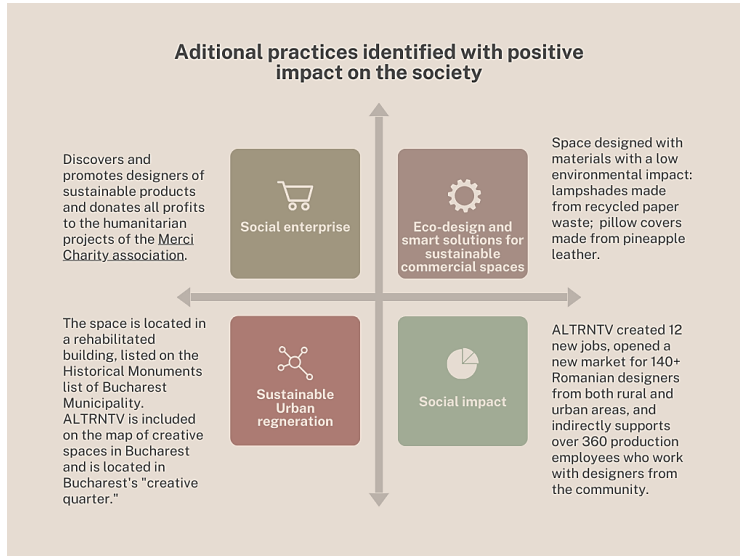
Table 5. ALTRNTV practices related to circularity

Production and consumption	Waste management	Secondary raw materials	Competitiveness and innovation	Global sustainability and resilience
<p>Material footprint At ALTRNTV, each designer is required to explain the origin of the material employed. Materials arriving from proximity to Bucharest are preferred. However, no certified scheme for material footprint monitoring is yet employed.</p>	<p>The recycling rate of waste, not including major mineral wastes 100% of the waste produced at ALTRNTV is collected selectively and distributed to a waste collector. The recycling rate of overall packaging 100% of the overall packaging is originated from recycled sources, either is manufactured at ALTRNTV/bought from EU (recycled cardboard/paper). The recycling rate of plastic packaging 100% of the plastic collected is distributed to a waste collector, recycled.</p>	<p>The usage rate of circular materials 100% of raw materials employed by the designers at ALTRNTV are either recycled, deadstocks, biodegradable, organic (Certified GOTS, OEKO-TEX for fabrics). Intra EU trade The organic fabrics certified are bought from the EU (Poland, Portugal, Germany, Romania).</p>	<p>Private investments Investments in ALTRNTV were done 100% by private investors (foundation NESsT) and companies: Banca Comerciala Romana, Philips Romania, Tarketk). Employed individuals This business collaborates with 140 designers who employ 360 + people. ALTRNTV's staff is of 7 people. All designers and ALTRNTV offer decent work conditions (ISO 45001).</p>	<p>Consumption footprint By buying circular products from ALTRNTV, the customers diminish their consumption footprint because of their choice of products with less CO2 footprint. GHG emissions from activities of production ALTRNTV produces its own line of clothing with a diminished CO2 footprint and sells in the store.</p>

Source: authors' analysis based on the Circular Economy Monitoring Framework, per the European Environment Agency (2024).

Moreover, additional elements of circularity were employed, not yet integrated in the Circular Economy Monitoring Framework (Figure 1) such as the sustainable regeneration of urban space, the incorporation of eco-design and smart solutions into the shop's design, the generation of social impact, and the support of social entrepreneurship. Through this, the paper's findings confirm the previous work of Lawrence (2015) and Nasr et al. (2023), who debated on the usage of sustainable building materials. The paper's findings also reflect adherence with Barna et al. (2022), who advocate on the importance of social enterprises and the European Structural Funds grants for the Romanian circular economy. Last but not least, the findings are in line with Arora and Mishra (2023) and Campbell et al. (2018), by proving that ALTRNTV Shop operates in accordance with SDG 12, Responsible consumption and production, and with SDG 13, Climate Action.

Figure 1. Additional elements of circularity associated with positive impact



Source: authors' own processing.

The startup is concerned with exerting a minimal environmental impact by running business processes that source materials from proximity locations (preferably Romania), to lower carbon emissions during transportation (by electric car, bike). Additionally, as employees are the core of business success, ALTRNTV supplies them fair work conditions as per ISO 45001 guidelines. In addition, as it currently relies on well established circular practices, ALTRNTV can continue to enrich the local circular economy manufacturing sector by attending events for startups, for instance, Romanian Design Week.

Table 6. Circular economy principles at ALTRNTV

Circular economy principles (Basarabă & Cojocaru, 2015)	Actions done by ALTRNTV shop in line with Basarabă and Cojocaru (2015)
enhancing raw material purity to permit an easier recycling	The shop only accepts to exhibit and sell products made from mono natural certified materials and alternative bio-degradable materials.
encouraging repair-remanufacture processes to generate employment	The shop has encompassed a tailor shop which acts also as a repair workshop. It currently employs one person.
forming a multisectoral team	The shops team is formed by experts in textiles, professors from ASE – the business administration stream and the University of Arts in Bucharest – fashion stream.
setting up a motivating economic context in terms of fiscal considerations	The business model of ALTRNTV is the most motivating for the designers who exhibit, currently charging the lowest commission in the market, and offering additional PR and marketing opportunity (such as the campaign to promote young female entrepreneurs endorsed by the US Embassy in Romania: Voices of Wom(en)trepreneurs).

Source: authors' analysis based on the qualitative data collected.

To boost the awareness of the young generation on circular economy, ALTRNTV plans to develop collaboration with universities (the Faculty of Business Administration and its Master in Entrepreneurship), through internship offerings, and presentation of the startup's activities through guided visits of students, and collaborations with the business environment, recently advancing in discussions with the American Chamber of Commerce. Moreover, the operations of this startup align with the circular economy principles (Table 6) as described by Basarabă and Cojocaru (2015).

To further supply enhanced sustainable impact, a valuable direction for ALTRNTV is the formation of partnerships with other local circular economy businesses, from which it can acquire know-how and innovative practices, in line with Piciu (2019), who underlines the importance of industry networks and innovation in fostering the shift to circular economy. ALTRNTV already implements collaborative practices with sustainable product designers, however, there is room for extended business partnerships leading the way to increased social impact. To strengthen its potential, ALTRNTV should also prioritise the gathering of a certified scheme for material footprint monitoring.

6. Conclusions

This research aimed to detail how a circular economy retail business in Bucharest, Romania aligns with the Circular Economy Monitoring Framework indicators and what additional elements of circularity and positive impact on the society it produces. This is, as far as we know, a first research on Romanian based startups in the circular economy, and it maps how much of the circular economy practices can be implemented in the current context in Romania. In this case, the analysis allowed to describe how this startup is supporting the circular economy manufacturing sector and covers all five large categories of indicators of the Circular Economy Monitoring Framework (Table 5). Although the intention of this research was not specifically to highlight other significant societal impacts, the in-depth interview responses and the study of various internal and public materials revealed numerous practices by this startup that have a high social impact.

The research aims to fill an existing gap in the studies on the Romanian-based startups in the circular economy, illustrating how a Romanian circular economy startup supports the circular economy manufacturing sector, in line with the Circular Economy Monitoring Framework. The findings of the paper can be particularly useful to decision makers in the circular economy sector as well as individuals intending to become entrepreneurs in this field. A research limitation resides in the non-inclusion of other circular economy assessment indicators, which could enrich the research findings. Future research should aim to understand how circular economy practices implemented in businesses create positive social impact.

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