C-ENTRY

C-ENTRY: CIRCULAR ECONOMY ENTREPRENEURSHIP COMPETENCIES FOR YOUTH

R1: CE Sectorial Assessment Methodology

R1 – T:1.2 & T:1.5:

Reporting on collected questionnaires & Circular Economy indicator analysis

CONTENT

INTRODUCTION

C-ENTRY (Circular Economy Entrepreneurship Competences for youth) project aims to promote employment and entrepreneurship in EU rural areas by equipping young people with the skills to establish co-working and start-up incubators that take advantage of the Circular Economy's opportunities, with concrete examples in three economic sectors: furniture, agro-business, and building/housing, as these are strategic fields for Europe's smart economic and social development. The initiative is based on one of the primary pillars of the European Union's new Circular Economy Action Plan.

RESULT 1

The first result of the project (R1) shall result in the self-assessment tool that will evaluate the adoption degree of CE policies in the organizations with the aim to provide a clear illustration of the type of investments for young people that may be supported in the context of the CE.

In the framework of this Result of the project (CE Sectorial Assessment Methodology), questionnaires are distributed to 10 organizations/ businesses (furniture, housing/building, agro-business, etc.) per partner's country (Greece, Cyprus, Ireland, Italy, Lithuania, and Romania) engaged with CE activities to assess the current state of each sector against specific circularity aspects, as well as to discuss existing barriers and potential policy interventions towards a successful transition.

The research questionnaire includes closed-ended questions with quantitative and qualitative characteristics, grouped into 3 different groups and a total of 19 questions.

A. The first group includes 5 questions related to the company/ organization profile to see how they are connected with the other questions.
B. The second group consists of 6 questions related to the knowledge and evaluation of the circular economy in the business sector.
C. The third and last group consists of 8 questions related to the practical applications of the company/organization in the model of the circular economy.

The questionnaire was created online on Google Forms and can be found on the link below: https://forms.gle/j8nSknGqEXSEGmP88

In the following pages, the first part (Part I) of the report is presented. Each partner presents part of the R1 and specifically analysis for the results of the survey responses. This analysis is divided in three parts, based on the three parts of the questionnaire.

Then, a list of best practices mentioned from organizations throughout the questionnaire is created and between them, are chosen the most frequent mentioned indicated with the number of responses. This facilitates the comparison between the best practices used in the six partner countries around EU.

At the part II, the analysis goes a step further and categorizes these best practices of each sector (agro-business, housing/building, furniture, etc.) According to answers to four objectives which are the reduced resource consumption, the intensified product use, the extending life of products/components and the giving resources new life. Each one of them includes some strategies. Then, the best practices are identified and classified based on the Circular Economy Indicator Analysis. The responses of the questionnaire and further research makes the classification more efficient.

CE indicators are divided into 5 major categories: Resources, Waste, Energy, Emissions, and Innovation.

The report ends up with the conclusions. The conclusion reinforces the main messages of the analysis, which are related with the objectives of the project.

PART I: ANALYSIS OF QUESTIONNAIRE DATA FROM EACH PARTNER COUNTRY

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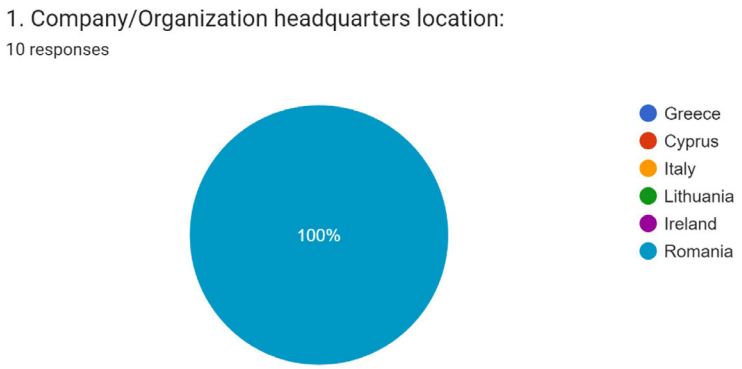
A. General information on respondent companies (Company/ Organization Profile) – (Questions 1-5)

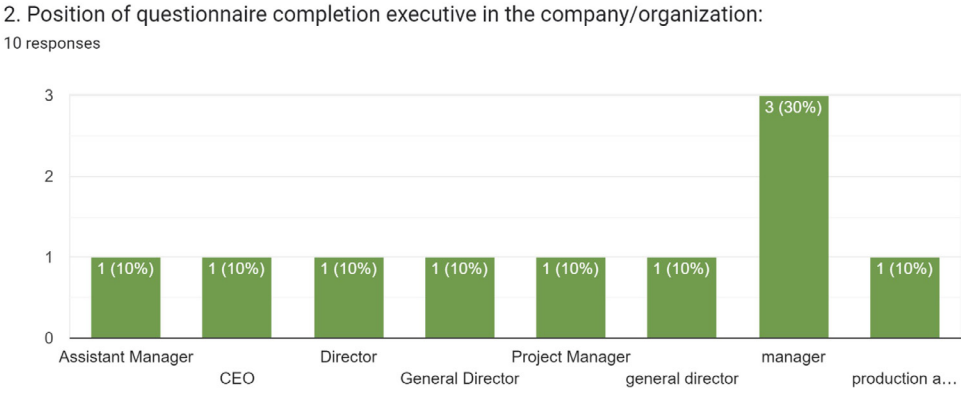
Country: ROMANIA

Questions 1-5:

All the 10 respondents involved in this survey are from Companies and Organisations located in Romania.

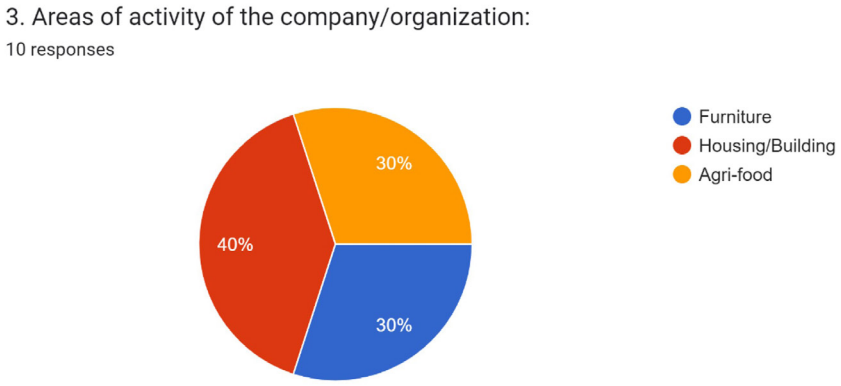


The answers collected for question n.2, regarding the role of the respondents within their companies/organisations can be schematised as the following:



According to answers to question n.3, the area of activity of the Organisations involved in the survey are:

- Furniture: 3 360%)
- Housing/Building: 4 (40%)
- Agri-food: 3 (30%)

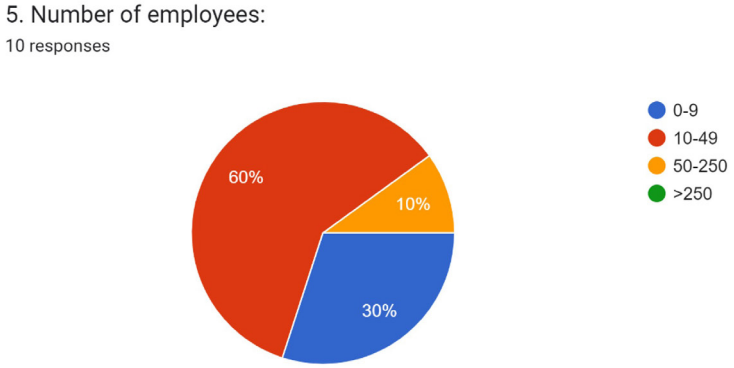


According to answers to question n.4:

- 70% of the organisations involved have been established after 2010
- 30% between 2000 and 2010

According to answers to question n.5:

- 30% of the organisations involved in the survey have from 0 to 9 employees
- 60% from 10 to 49 employees
- 10% from 50 to 250 employees



B. Knowledge/Evaluation of Circular Economy – (Questions 6-11)

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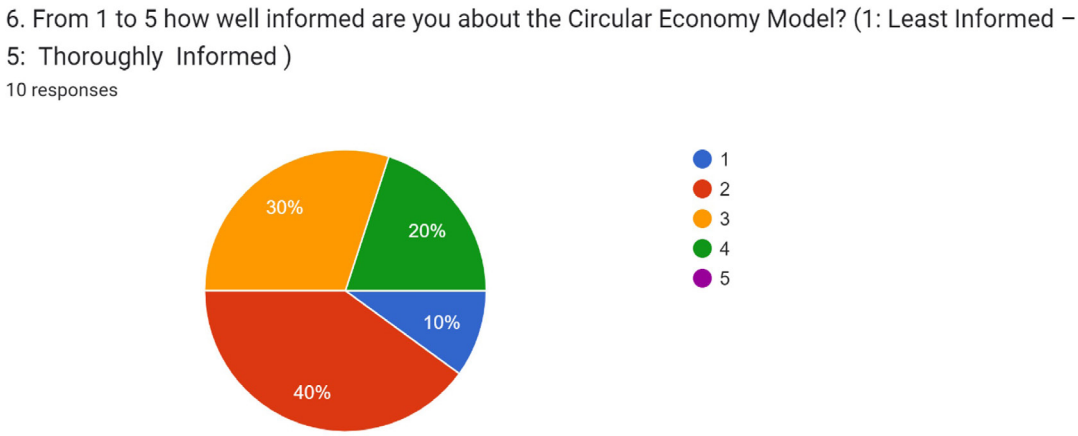
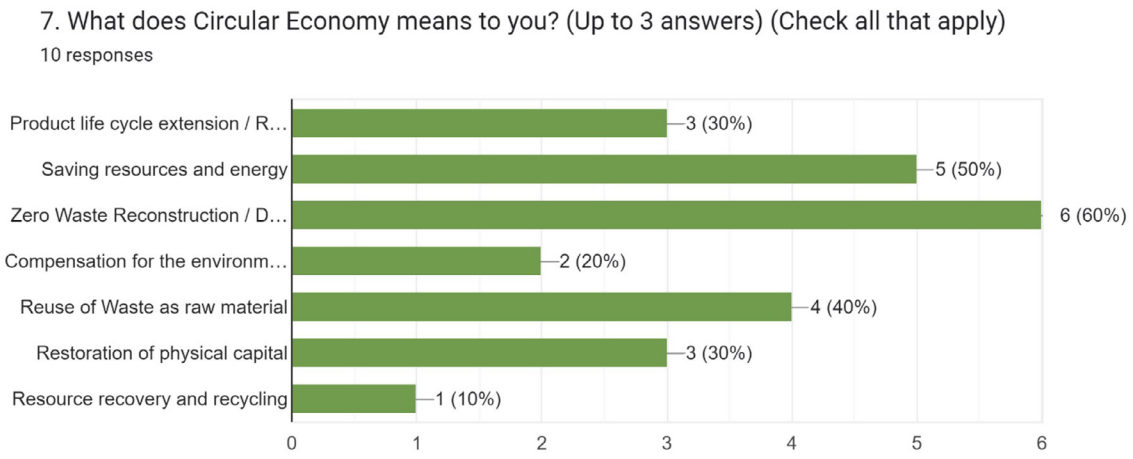
According to answers to question n.6, about the knowledge of the respondents about Circular Economy Model (1-5)



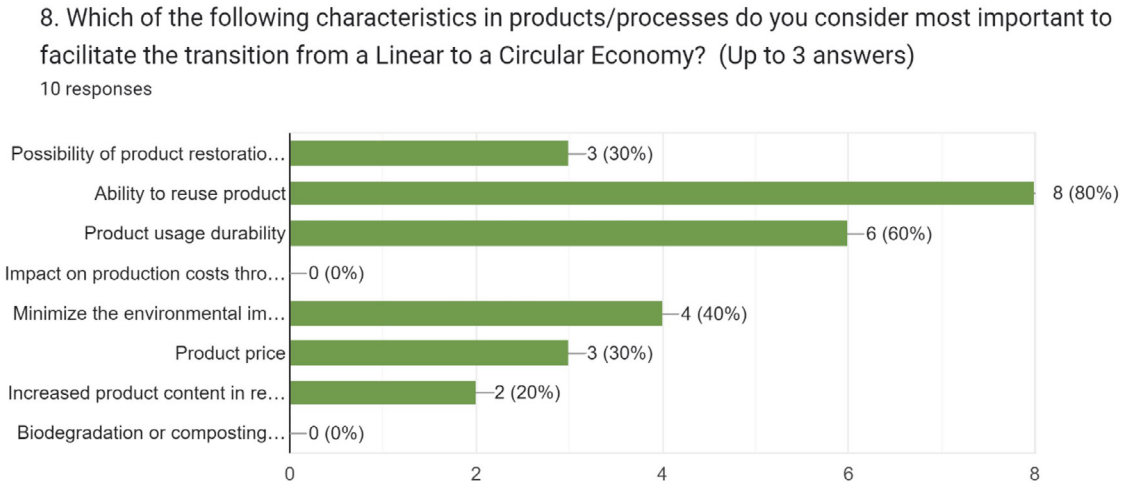
According to answers to question n.7, about the meaning given to Circular Economy respondents answered as following:

- Saving resources and energy (5)
- Reuse of Waste as raw material (4)
- Zero Waste Reconstruction / Design (6)
- Resource recovery and recycling (4)
- Product life cycle extension / Reuse (3)
- Restoration of physical capital (3)
- Compensation for the environmental impact (2)



According to answers to question n.8, the most important characteristics in products/process to facilitate the transition from a Linear to a Circular Economy are:

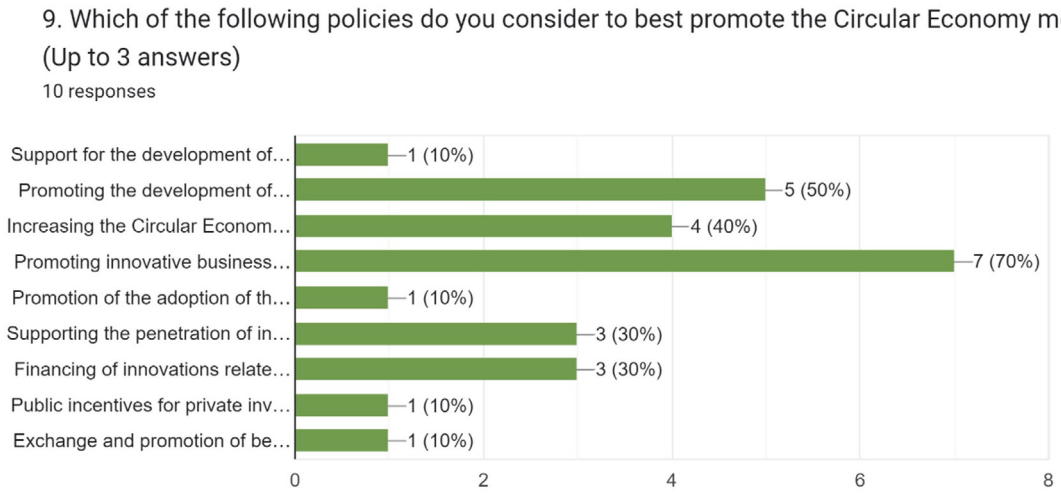
- Impact on production costs through efficient use of resources (7)
- Product price (3)
- Possibility of product restoration / repair (3)
- Ability to reuse product (8)
- Product usage durability (6)
- Minimize the environmental impact of the product life cycle (4)
- Biodegradation or composting of the product (1)



According to answers to question n.9, to best policies to promote the Circular Economy model are:

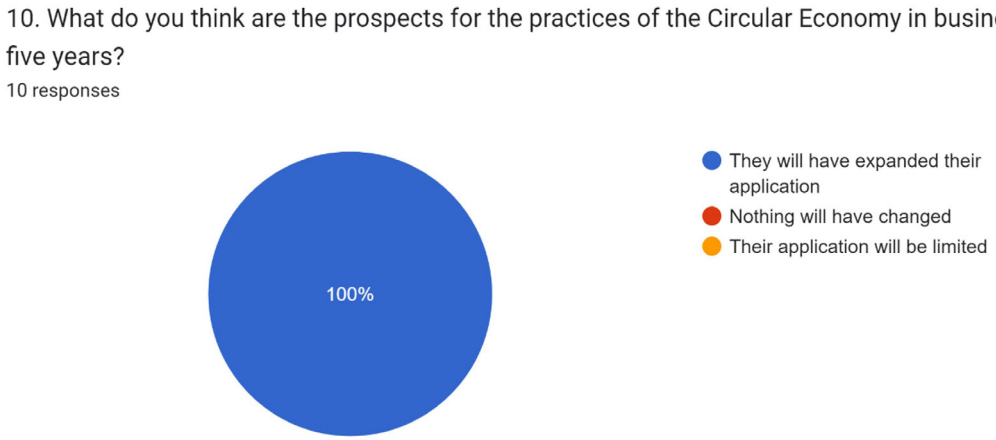
- Increasing the Circular Economy knowledge base by collecting and providing information and data (4)
- Public incentives for private investors to finance projects that favor the Circular Economy (1)
- Financing of innovations related to the Circular Economy (eg co-financed projects, banks, etc.) (3)
- Support for the development of Circular Economy projects (1)

- Promoting the development of skills / qualifications on the circular economy (5)
- Promotion of the adoption of the circular economy by the media (7)
- Supporting the penetration of innovative projects in the market through labeling, certification and standards (3)
- Promoting innovative business models for the circular economy (e.g leasing and distribution) (1)



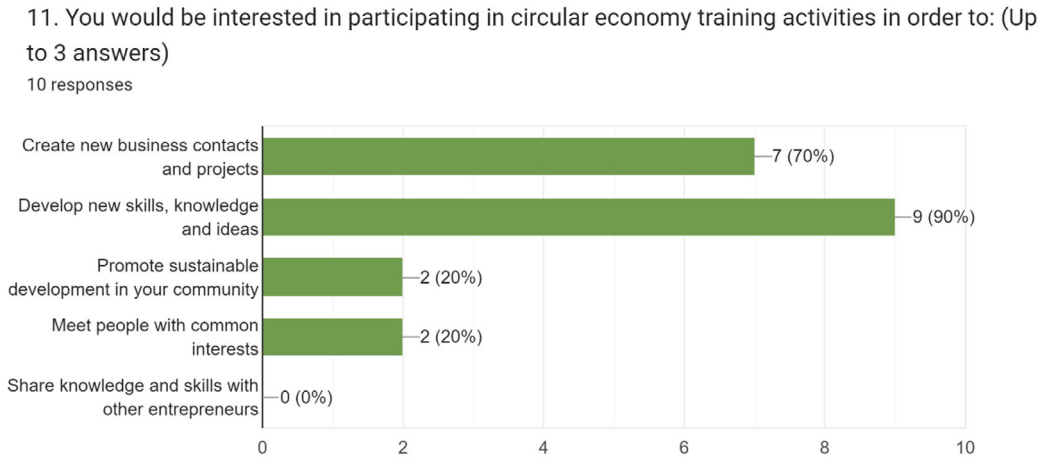
According to answers to question n.10:

- 100% of respondents believe that the practices of the Circular Economy in business after five years will have expanded their application



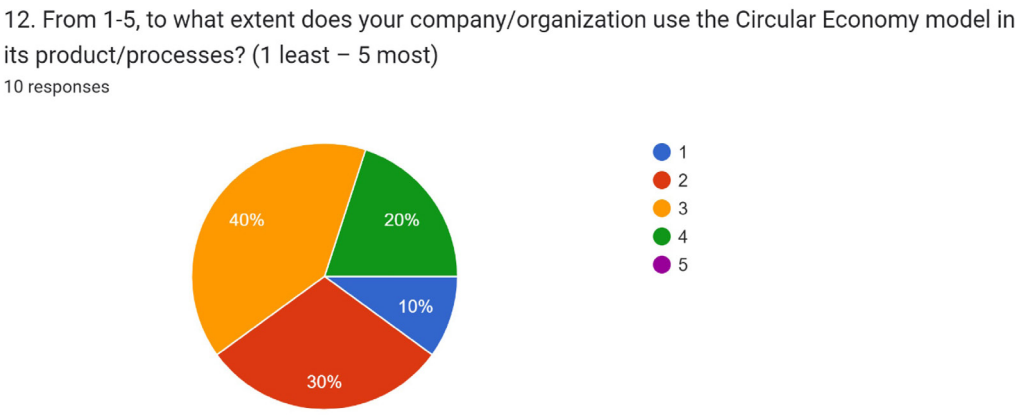
According to answers to question n.11, respondents will be interested in participating to Circular Economy training activities in order to:

- Develop new skills, knowledge and ideas (9)
- Meet people with common interests (2)
- Promote sustainable development in your community (2)
- Create new business contacts and projects (7)
- Share knowledge and skills with other entrepreneurs (0)



Practical applications of the company/organization in the model of the Circular Economy - (Questions 12-19)

According to answers to question n.12, about the level of application of the Circular Economy Model in the products/processes of the organisations involved (1-5):



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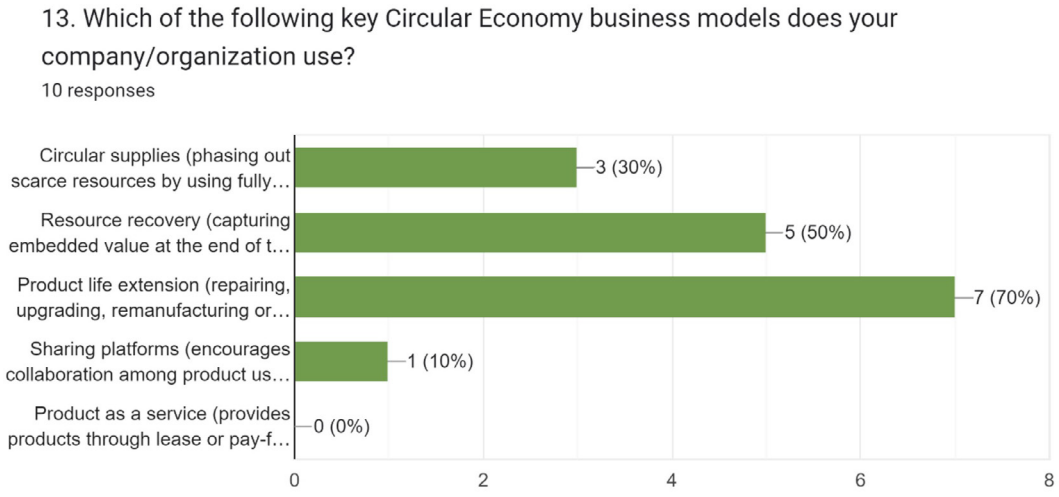
According to answers to question n.13 the following key Circular Economy business models are the mostly used in the organisations involved:

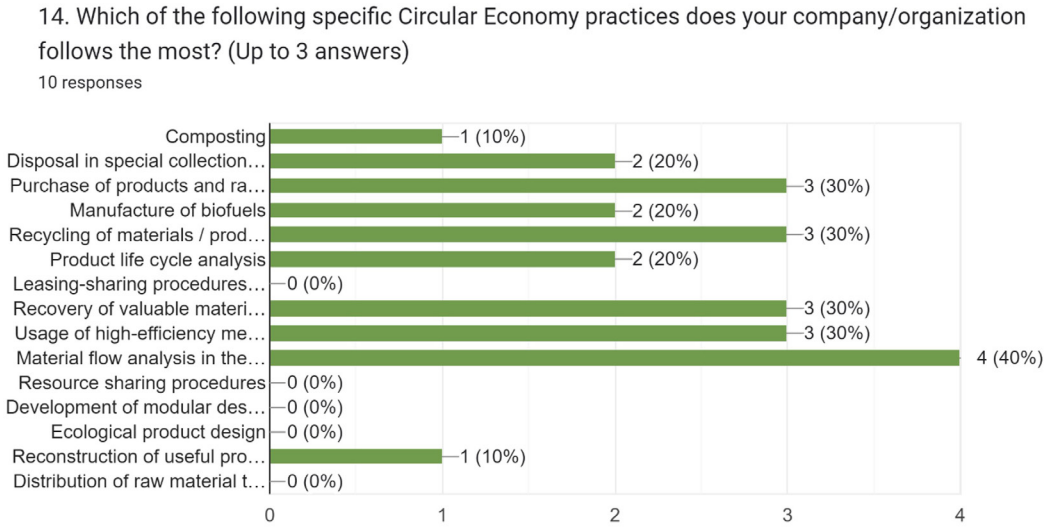
- Resource recovery (capturing embedded value at the end of the product lifecycle to feed into another via innovative recycling and upcycling services) (5)
- Product life extension (repairing, upgrading, remanufacturing or remarketing products) (7)
- Circular supplies (phasing out scarce resources by using fully renewable, recyclable or biodegradable resources) (3)
- Sharing platforms (encourages collaboration among product users, whether individuals or organizations) (3)
- Product as a service (provides products through lease or pay-for-use arrangements (1)



According to answers to question n.14, the following specific Circular Economy practices are the mostly followed by the respondents Organisations:

- Purchase of products and raw materials with ecological certification (3)
- Recycling of materials / products / energy (5)

- Development of modular design products
- Composting (1)
- Disposal in special collection areas for transport to landfills / landfills (2)
- Product life cycle analysis (2)
- Recovery of valuable materials and reuse (3)
- Resource sharing procedures (2)
- Reconstruction of useful products (2)
- Leasing-sharing procedures for final products by consumers (1)
- Material flow analysis in the production process (4)
- Ecological product design (1)
- Distribution of raw material to other companies and industries (1)



According to answers to question n.15, the following incentives have led respondents' company/organization to implement circular economy practices:

- Evolution according to the new trends of the time (0)
- Investment for future profits (4)
- Expansion into new markets and partnerships (4)
- Saving / using resources more efficiently (4)
- Economic growth, without degradation of the environment (4)

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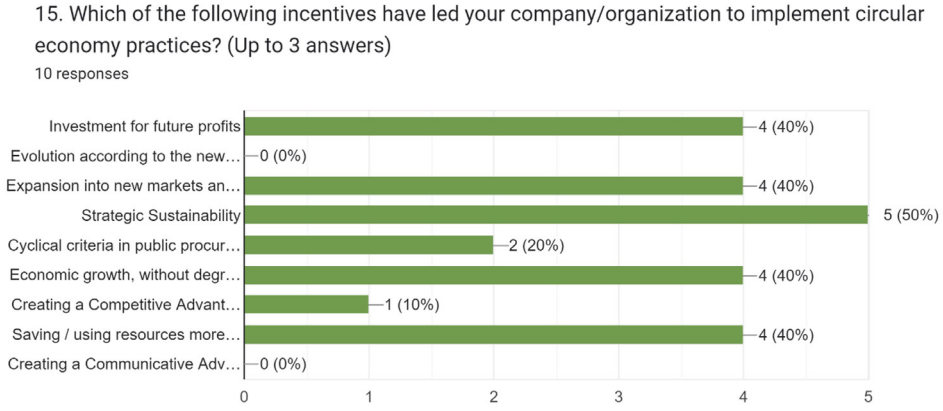
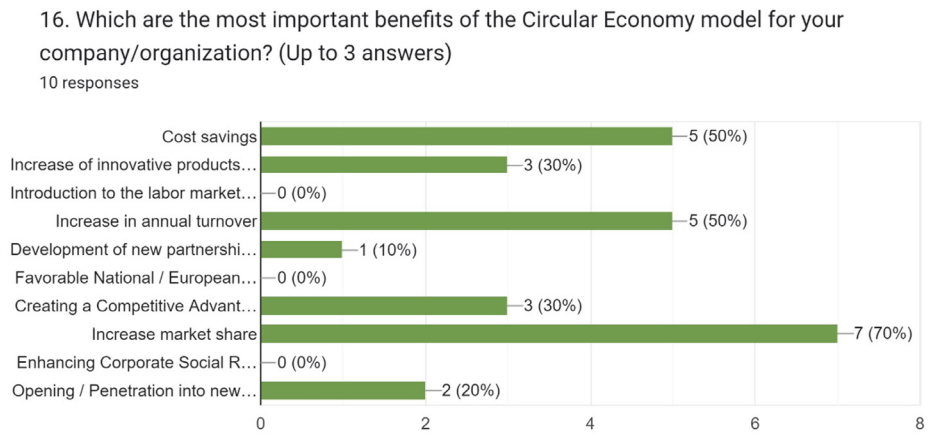
- Creating a Competitive Advantage (3)
- Strategic Sustainability (5)
- Cyclical criteria in public procurement (2)
- Creating a Communicative Advantage (1)



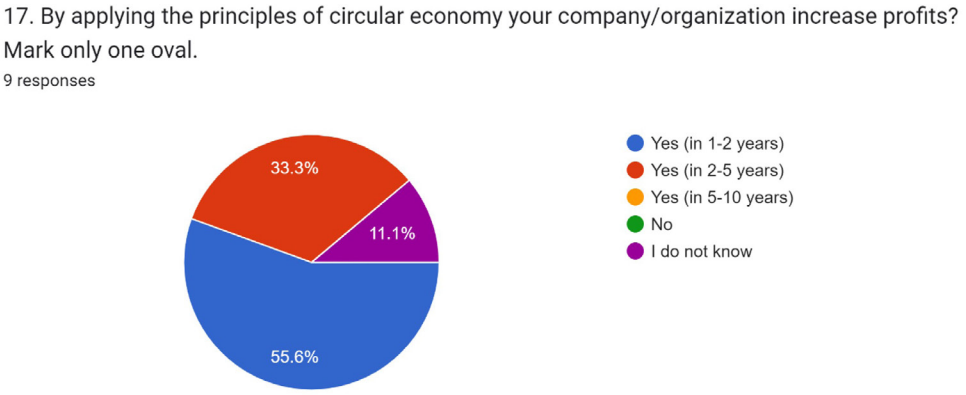
According to answers to question n.16, the most important benefits of the Circular Economy model noticed by respondents are:

- Increase of innovative products and production processes (3)
- Increase in annual turnover (5)
- Cost savings (5)
- Favourable National / European legislation (0)
- Creating a Competitive Advantage (3)
- Enhancing Corporate Social Responsibility - Improving the image (3)
- Introduction to the labor market of new skills and knowledge (0)
- Development of new partnerships- and collaborations (2)
- Increase market share (7)
- Opening / Penetration into new target markets (2)



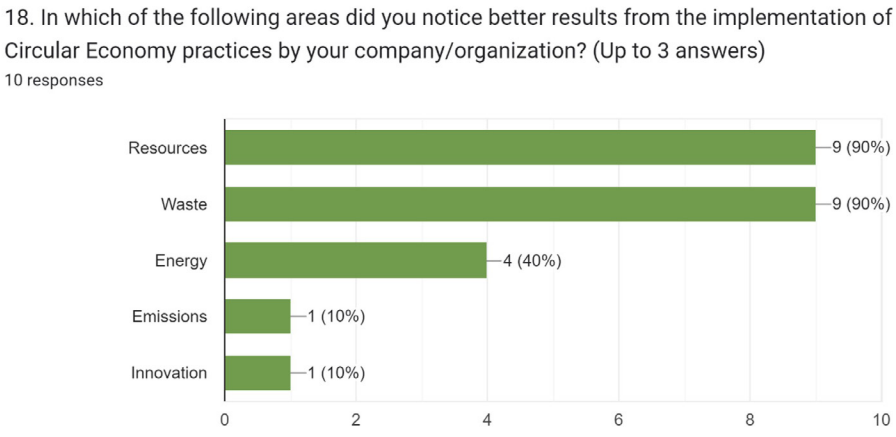
According to answers to question n.17

- 55.6% of the respondents believe their organisations will increase profits coming from Circular Economy Model principles application in 1-2 years
- 30.3% of the respondents believe their organisations will increase profits coming from Circular Economy Model principles application in 2-15 years
- 11.1% doesn't know



According to answers to question n.18, respondents noticed better results from the implementation of Circular Economy practices in the following areas:

- Resource (9)
- Innovation (1)
- Energy (4)
- Waste (9)
- Emissions (1)



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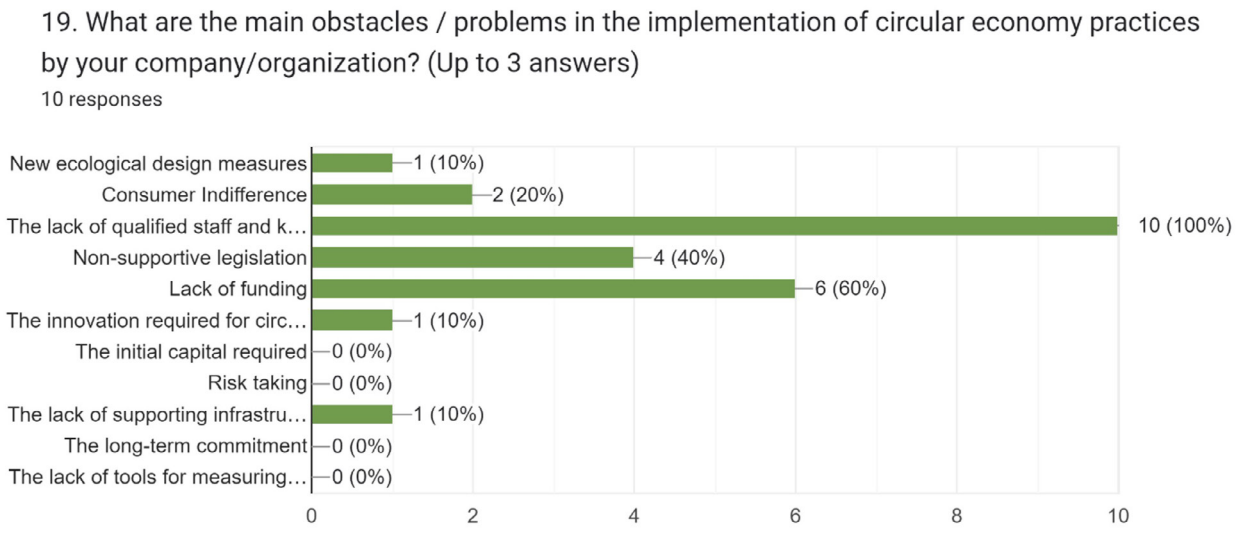
According to answers to question n.19, main obstacles / problems in the implementation of circular economy practices are related to:

- Non-supportive legislation (4)
- Risk taking (0)
- The initial capital required (0)
- Lack of funding (6)
- Consumer Indifference (2)
- The lack of qualified staff and know-how (10)
- The innovation required for circular design (1)
- The lack of supporting infrastructure / partners (1)
- The long-term commitment (0)
- The lack of tools for measuring cyclical economy progress (0)



List of best CE practices mentioned through the questionnaire:

- Composting
- Disposal in special collection areas for transport to landfills / landfills
- Purchase of products and raw materials with ecological certifications...
- Recycling of materials / products / energy
- Product life cycle analysis
- Leasing-sharing procedures for final products by consumers
- Recovery of valuable materials and reuse
- Material flow analysis in the production process
- Resource sharing procedures
- Development of modular design products
- Ecological product design
- Reconstruction of useful products
- Distribution of raw material to other companies and industries

Among the best practices cited by respondents:

Name of good practice	Number of responses
Purchase of products and raw materials with ecological certifications...	6
Recycling of materials / products / energy	5
Development of modular design products	3
Composting	2
Disposal in special collection areas for transport to landfills / landfills	2
Product life cycle analysis	2
Recovery of valuable materials and reuse	2
Resource sharing procedures	2
Reconstruction of useful products	2
Leasing-sharing procedures for final products by consumers	1
Material flow analysis in the production process	1
Ecological product design	1
Distribution of raw material to other companies and industries	1

PART II: IDENTIFICATION OF CIRCULAR ECONOMY BEST SECTOR PRACTICES

Construction Sector		
Objectives	**Strategies**	**Practices**
Reduced resource consumption	Eco-design	Recyclability
		Easier disassembly
		More effective use
		End-of-life of products Management
		Eco-friendly architecture
	Process optimization	Event Planning
		life cycle management
		Spare parts management
		Production planning and scheduling
		Distribution planning
		Strategic network management

Stock and supply planning and optimisation

Supply chain planning

Availability and capacity for commitment

Integrated business planning of sales and production

Co-ordinated and collaborative planning, including sales and supply forecasts

Demand planning

Inventory planning and management

Production planning and management

Use of data and advanced mathematical models

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	Responsible consumption and procurement	Paper recycling
		Sustainable packaging
		Logistics optimisation
		Artificial intelligence algorithms
		Raw material flow management
		Inventory and surplus reduction
		Short supply chain
Intensified product use	Sharing economy	Access rather than ownership
		Collaborative projects
	Short-term renting	Equipment rental

Extending life of products / components	Donating and reselling	Re-use and exchange of resources
	Refurbishing	Collection, refurbishing and reuse of bulky waste
	Performance economy	Synergic business models
Giving resources new life	Industrial ecology	Water reuse Textile materials from recycled plastic Manufactured products from 100% recycled plastic From shoe soles to rubber for flooring Bricks from demolition waste Optimal maintenance plans 3D-printed eco materials

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Recycling and composting	Designing of waste Recycling of household waste Green energy production and waste reduction Conversion of organic Waste into compost
Energy recovery	Centralized heating systems Building thermic isolation

Furniture Sector		
Objectives	**Strategies**	**Practices**
Reduced resource consumption	Eco-design	Recyclability
		Easier disassembly
		More effective use
		End-of-life of products Management
		Pay-per-use model
		Tackling premature obsolescence
		Single-material polyethylene products
	Process optimization	Event Planning
		life cycle management
		spare parts management
		Production planning and scheduling
		Distribution planning

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Strategic network management

Stock and supply planning and optimisation

Availability and capacity for commitment

Integrated business planning of sales and production

Co-ordinated and collaborative planning, including sales and supply forecasts

Demand planning

Inventory planning and management

Production planning and management

Use of data and advanced mathematical models

	Responsible consumption and procurement	Paper recycling
		Sustainable packaging
		Logistics optimisation
		Artificial intelligence algorithms
		Raw material flow management
		Inventory and surplus reduction
		Supply chain planning
		Short supply chain
Intensified product use	Sharing economy	Access rather than ownership
	Short-term renting	Equipment rental

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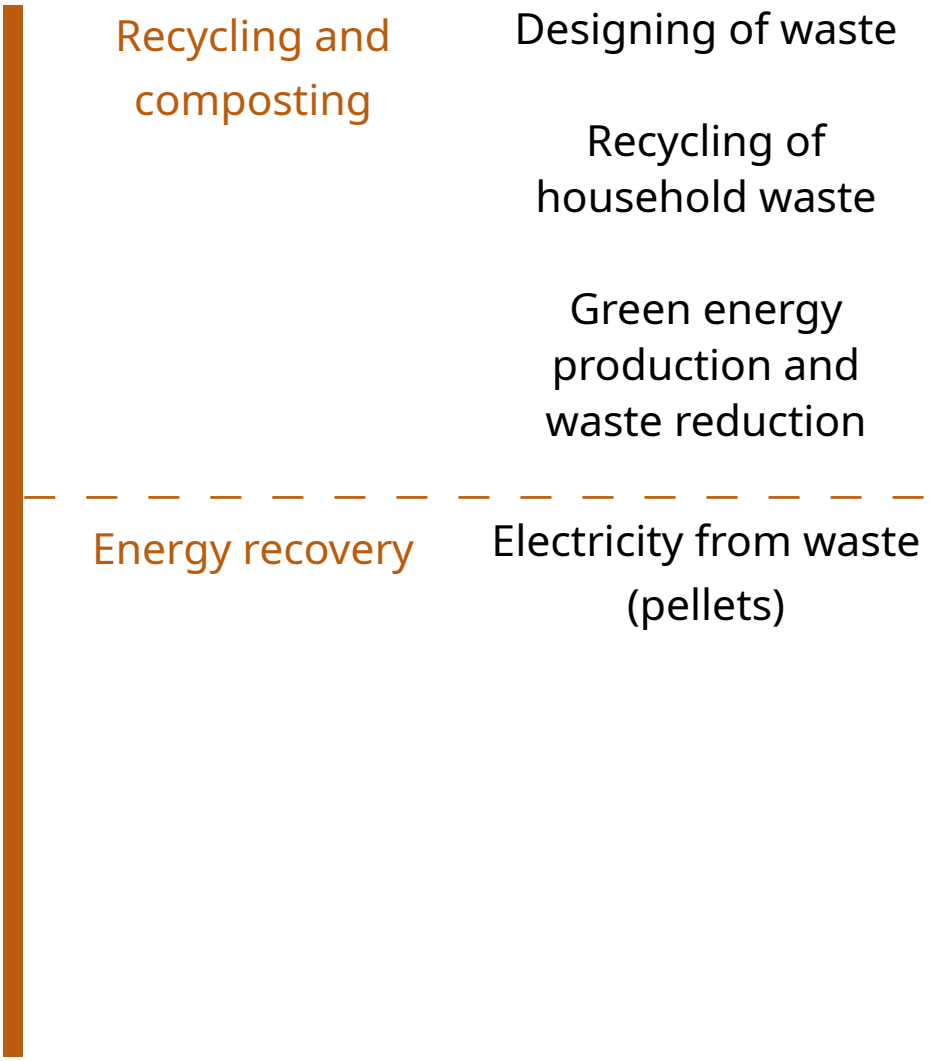
Extending life of products / components

Donating and reselling	Re-use and exchange of resources
Refurbishing	Collection and reuse of bulky waste
Performance economy	Product as a service Synergic business models

Giving resources new life

Industrial ecology	Water reuse Textile materials from recycled plastic Manufactured products from 100% recycled plastic Biomethane from sewage sludge From shoe soles to rubber for flooring Raw materials from waste Optimal maintenance plans



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Agri-food Sector		
Objectives	**Strategies**	**Practices**
Reduced resource consumption	Eco-design	Recyclability
		More effective use
		Eco-material tools and products
		Impact free agriculture
	Process optimization	Event Planning
		Spare parts management
		Production planning and scheduling
		Distribution planning
		Strategic network management
		stock and supply planning and optimisation
		Supply chain planning

Availability and capacity for commitment

Integrated business planning of sales and production

Co-ordinated and collaborative planning, including sales and supply forecasts

Demand planning

Inventory planning and management

Production planning and management

Responsible consumption and procurement

Paper recycling

Sustainable packaging

Logistics optimisation

Artificial intelligence algorithms

Raw material flow management

Inventory and surplus reduction

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Intensified product use

- Sharing economy — Access rather than ownership
- Short-term renting — Equipment rental

Extending life of products / components

- Donating and reselling — Re-use and exchange of resources
- Refurbishing — Collection and reuse of bulky waste
- Performance economy — Product as a service; Synergic business models

Giving resources new life

Industrial ecology	Water reuse
	Biomethane from sewage sludge
	Full usage of raw agriculture products
Recycling and composting	Designing of waste
	Recycling of household waste
	Green energy production and waste reduction
	Conversion of organic waste into compost
Energy recovery	Biofuels from used vegetable oils
	Biomethane from waste
	Electricity from the recovery of olive tree prunings

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CONCLUSIONS

Starting with 2021, Romania has its first Strategy for Circular Economy - ROCES 2030. The existence of such a document, which comprehensively addresses the essential elements of the circular economy (waste recovery, circular business models, public green acquisitions, etc.) is crucial for obtaining financial funding for circular economy projects and also for monitoring the progress of the transition to a circular economy through specific and measurable objectives.

Another important event is the Recovery and Resilience Mechanism (MRR), which is the mainstay of #NextGenerationEU, a temporary financial instrument with the main purpose of providing support to Member States to meet the challenges posed by the Covid 19 Crisis and its economic consequences. The first pillar of this plan, the Green Transition has a special section dedicated to Waste Management and Circular Economy, through which it will be possible to obtain financing and support for projects aimed at facilitating the transition towards a circular economy (e.g.: the inclusion in the economic circuit of secondary raw materials derived from materials recovered from the population in the form of waste, the development and implementation of the guarantee-return system for packaging, including the acquisition of hardware and software infrastructure., investments in aerobic storage, management and composting systems, etc).

Notwithstanding all this, the level of recycling, considering all the recycling loops, remains extremely low in Romania, and the negative evolution raises numerous challenges. Recycling is 5 times lower than the European average according to Eurostat. In a context where raw

materials are becoming increasingly scarce and expensive, recycling only 13% of waste generated in Romania means wasting valuable resources available.

The main challenge is to address the gap between the results of waste management (waste containing convertible materials in accordance with the development stage of solutions and technologies) and their effective reintroduction into new products. The establishment of a market for convertible waste, and a transparent and dynamic market for secondary materials are paramount tasks that should be carried out by the government in collaboration with the private sector.

Another pressing issue is the revision of regulations on the reuse and recycling of textiles in order to be able to create a market for sustainable and circular textiles.

Romania's performance in implementing the principles and regulations of circular economy is pretty poor compared with the other EU countries that have a tradition in this sense and have put lot of efforts into improving the performance. The efforts consist of setting forth a regulatory framework that encourages companies to build circular

business models (both in terms of incentives and penalties), doubled by awareness raising campaigns meant to change people mindset about healthy circular consumption habits.

Unfortunately, the very low separate waste collection and recycling rates put us among the last countries in Europe in this area and the circular economy strategies and regulations remain only on paper, with no significant implementation tangible results. The isolated efforts of companies on bringing a positive impact on circularity cannot compensate the lack of initiative of the competent authorities or the poor regulation.

Implementing and monitoring the circular economy in Romania requires on one hand updating the national legislation to conform with European regulations, and on the other hand opening up all activities of economic and social life towards initiatives and innovative business models.

Efficient waste management aids the circular economy extremely well. Through recycling raw materials and important energy resources can be saved. This is the reason a synthetic indicator has been

created, which follows the efficiency of material consumption through comparing tons of waste generated within the economy with internal material consumption, the smaller the value of this ratio, the better the performance.

For Romania the analysis found a descendant trend for the indicator's value. Therefore, the 2024 forecasts see that only 3.81% of internal material use will end up as waste, so a superior performance. In comparison, the European average's trend is ascendant—the 14.30% rate for the same year 2024 showing a reduced efficiency of material consumption. The value almost four times lower that Romania registered for the indicator compared with the European average shows us that—at least through its perspective—Romania's performance regarding responsible production and consumption is above the European average.

Selective collection of waste and recycling are key points in reducing pressure put upon
the environment. Unfortunately, in Romania in the latter years of the period analysed—only a bit above 10% of total municipal waste has been recycled. The forecasts made after applying the econometric model shows the continuation of the sinuous evolution in the next period as well, without major progress, the recycling rate of municipal waste being forecasted in 2023 to be 11.60%. The values already registered for the European average—over 4.5 times larger than Romania's, and increasing—shows that, to arrive at this level of performance, the other EU Member States have efficiently adopted and implemented the principles of selective collection and recycling. For the forecasted period the gap between the European average and

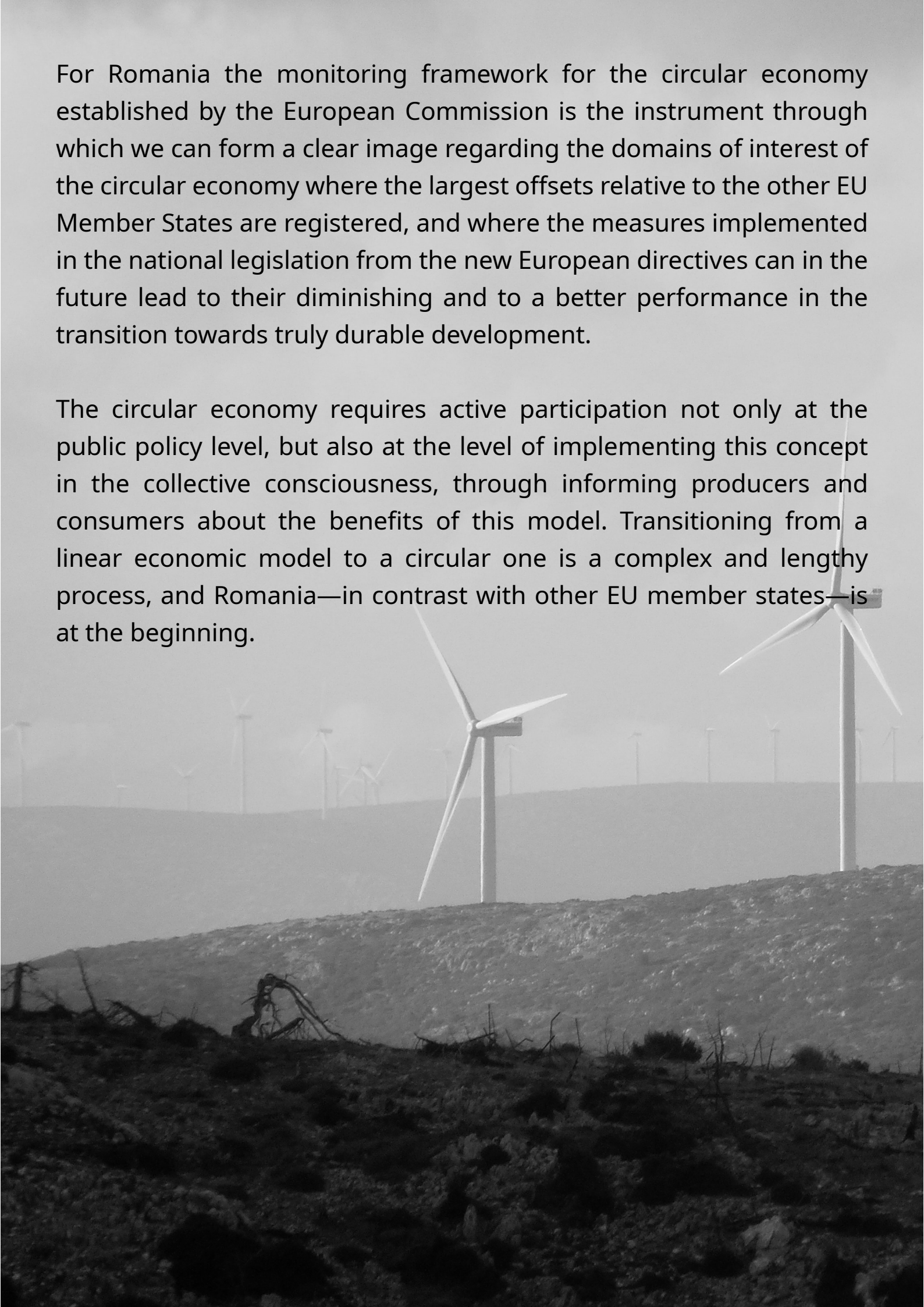
the rate's value for Romania is increased against the background of maintaining the upward trend in the case of EU-27 and the projected values that do not exceed the value recorded in the last year of the data series available on Eurostat in the case of Romania.

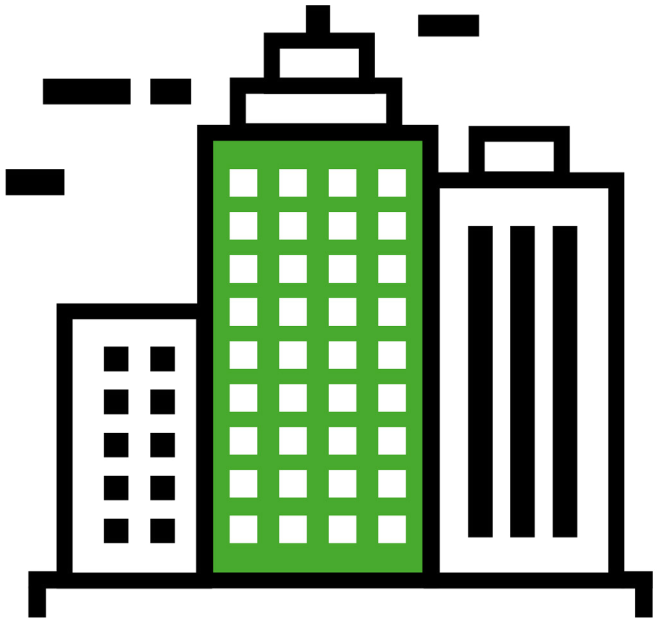
Waste management in Romania had until 2021 been realised on the basis of Law no. 211/2011. Insufficient measures contained in this law and their poor implementation have led to the situation registered in the period analysed. Furthermore, the fact that Romania has not transposed in its national legislation—before the established deadline—EU Directive 2018/851 of the European Parliament and of the Council from 30May 2018 for modifying Directive 2008/98/CE regarding waste, shows us that effort at national level must be intensified. In order to avoid sanctions following the non-application in time of the directive, the Romanian Government emitted Emergency Ordinance no. 92 regarding waste procedures on August 19, 2021, this new regulation leading in the future to the 2011 law's complete abrogation.

The low municipal waste recycling rate relative to the European average, without encouraging perspectives, shows us that an update of the legislative framework was needed—which included measures imposed at European level—which was realised through the aforementioned emergency ordinance. The effects of this first step will not be seen immediately, but we hope that in the future we can speak of a better performance registered by Romania in this key domain for the circular economy.

For Romania the monitoring framework for the circular economy established by the European Commission is the instrument through which we can form a clear image regarding the domains of interest of the circular economy where the largest offsets relative to the other EU Member States are registered, and where the measures implemented in the national legislation from the new European directives can in the future lead to their diminishing and to a better performance in the transition towards truly durable development.

The circular economy requires active participation not only at the public policy level, but also at the level of implementing this concept in the collective consciousness, through informing producers and consumers about the benefits of this model. Transitioning from a linear economic model to a circular one is a complex and lengthy process, and Romania—in contrast with other EU member states—is at the beginning.





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