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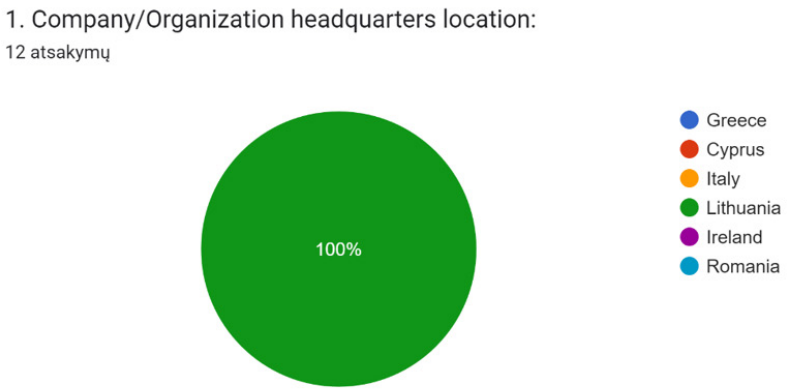
A. General information on respondent companies (Company/ Organization Profile) – (Questions 1-5)

Country: Lithuania

Question 1:

All twelve persons who participated in the survey work in companies and organizations established in Lithuania.

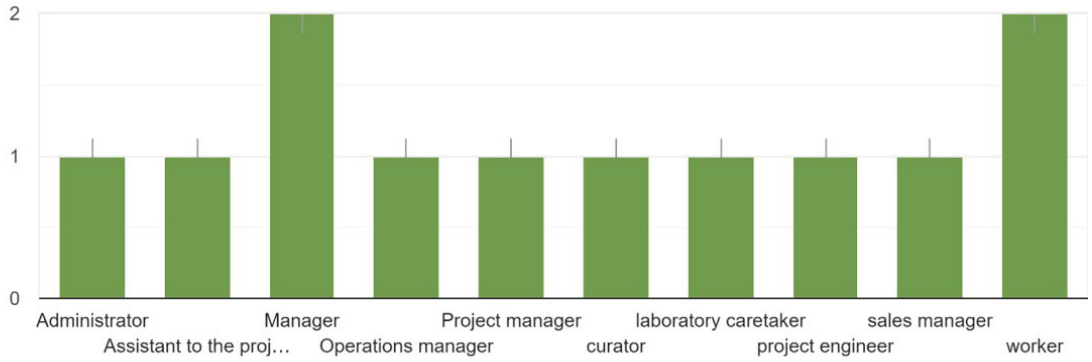


Question 2:

Respondents occupy different positions in organizations: administrator, manager of various fields, laboratory technician, engineer, worker. The predominant profession is that of a manager and a worker. It can be said that these are mostly persons who do not work in the management of the company/organization.Organisations involved in the survey are:

2. Position of questionnaire completion executive in the company/organization:

12 atsakymų



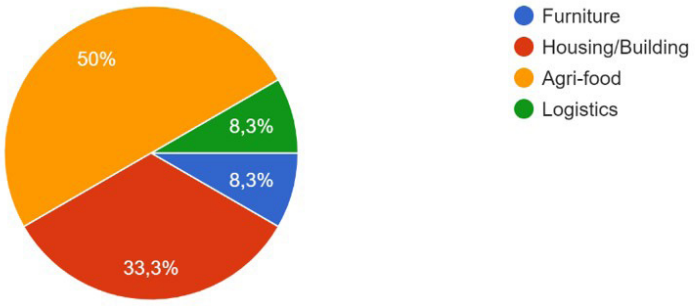
Question 3:

Half of the respondents work in the agricultural and food industry sectors, that is, six persons. 4 respondents represent construction companies, one more - logistics and furniture manufacturing.

The predominant industry in Lithuania is precisely agriculture and the food industry, so the answers are symptomatic.

3. Areas of activity of the company/organization:

12 atsakymų



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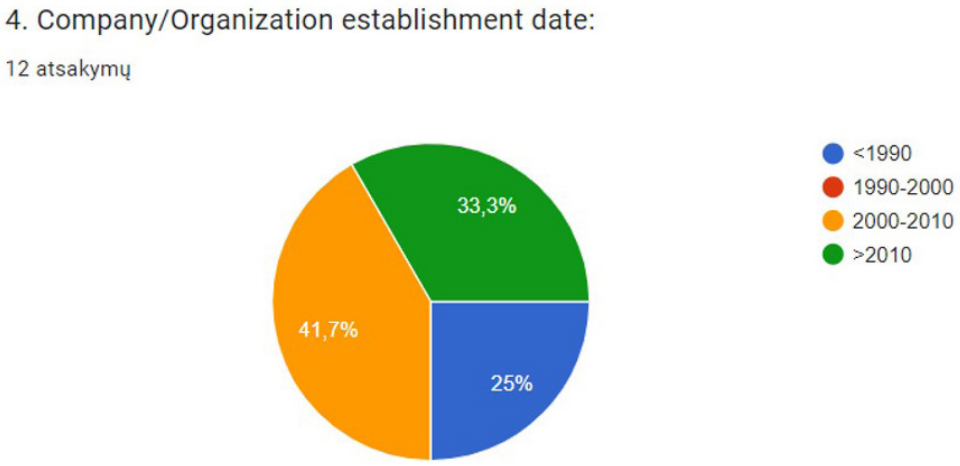
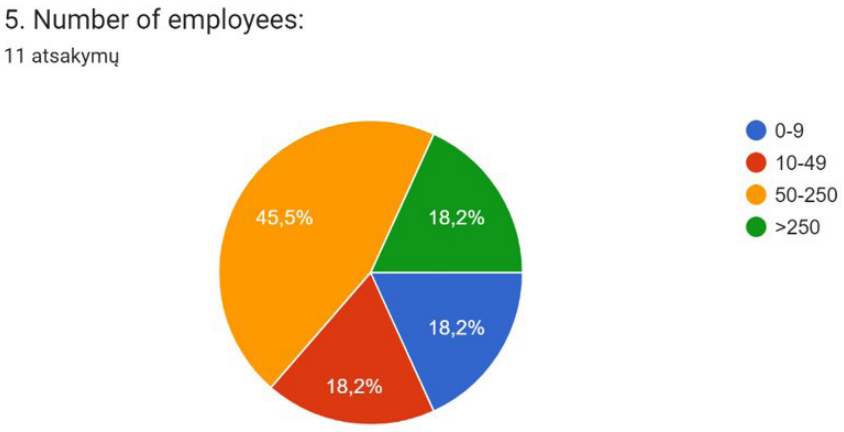
Question 4:

5 represented organizations were founded relatively recently, in 2000-2010. 4 were established after 2011, another 3 were established before Lithuania regained its independence in 1990.



Question 5:

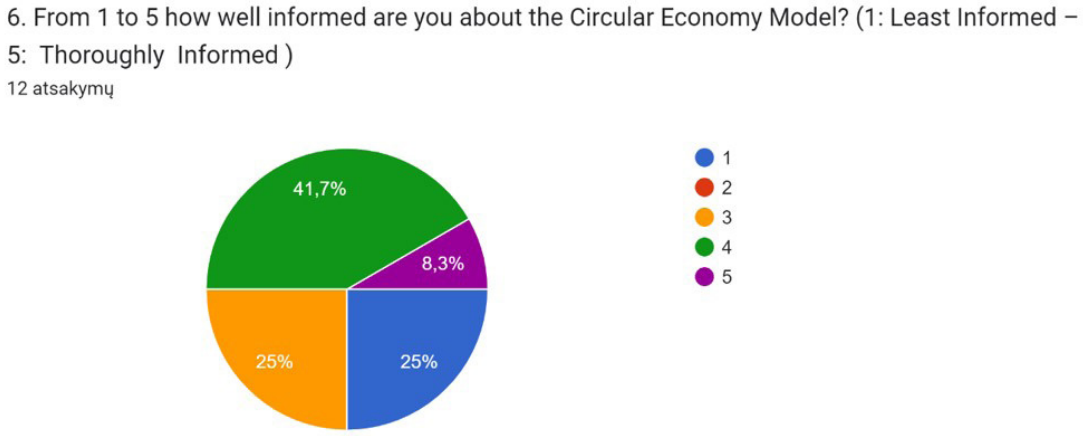
Most of the represented companies have 50-250 employees. Accordingly, up to 9, 10-49 and more than 250 employees mention two companies each. So, we can talk mostly about medium-sized companies.



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

Question 6:

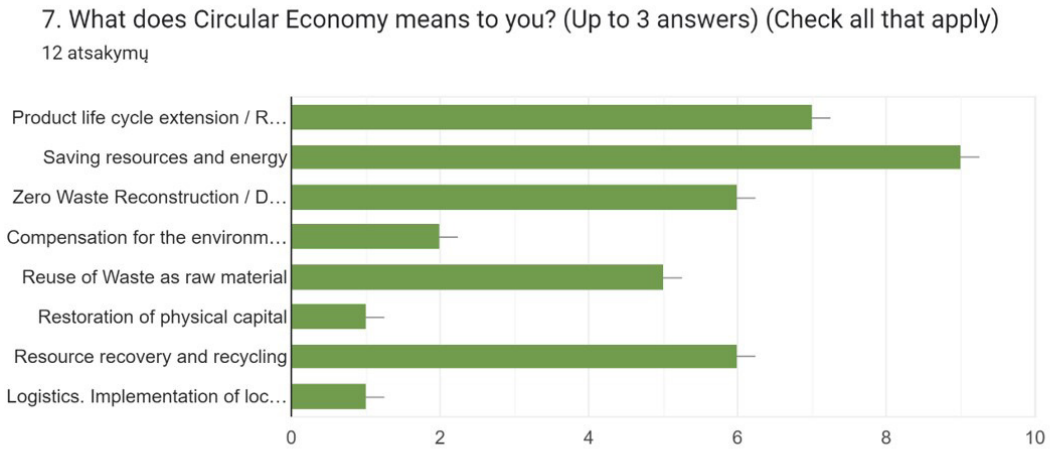
Only one respondent thinks he has a good understanding of the circular economy model. Most of the respondents, about sixty percent, rate their knowledge better than average, while three respondents



rate their knowledge as minimal.

Question 7:

Respondents primarily associate the circular economy with saving resources and energy (9 votes), product life extension and reuse (7 votes), zero waste reconstruction and resource recovery and recycling (6 votes). The least, one vote each, went to the restoration of physical capital and the addition recorded by one respondent - logistics,



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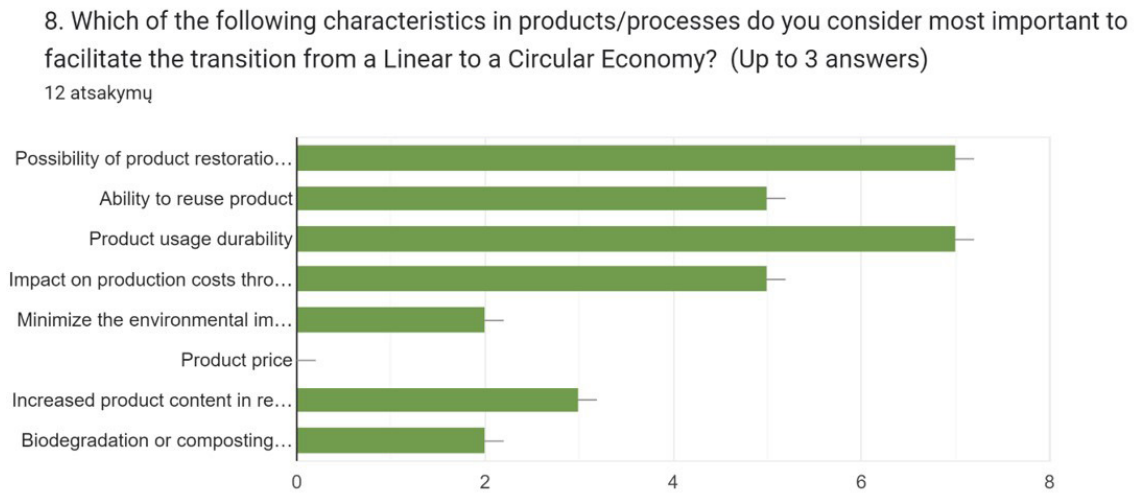
meaning implementation of local resources.

Question 8:

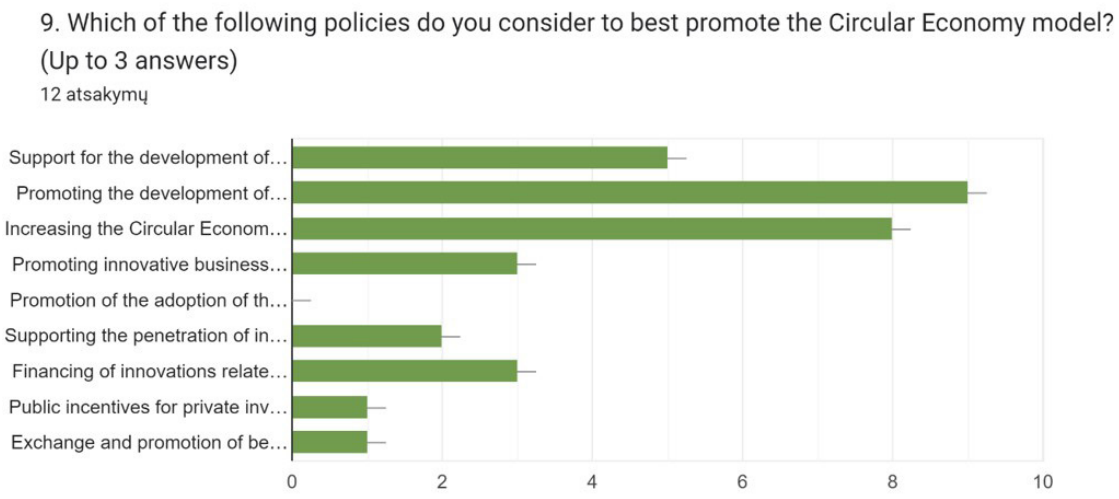
The most significant characteristics for the transition from a linear to a circular economy were chosen as follows: possibility of product restoration or repair (7 votes), product usage durability (7 votes), ability to reuse product (5 votes) and impact on production costs through efficient use of resources (5 votes). None of the respondents chose



product price.

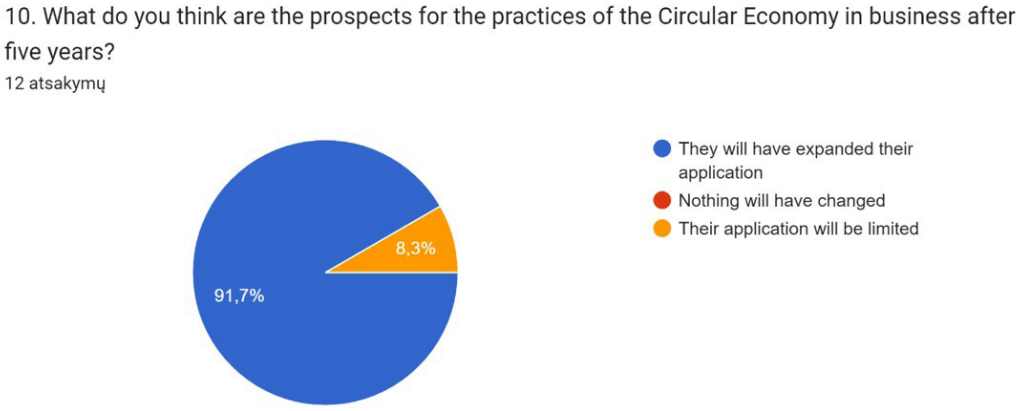
Question 9:

When answering the question about promoting the circular economy model, respondents mostly emphasized promoting the development of qualifications on the circular economy (9 votes), increasing the circular economy knowledge base by collecting and providing information and data (8 votes) and support for the development of circular economy projects (5 votes). The following aspects are not emphasized at all: promotion of the adoption of the circular economy by the media (0 votes), public incentives for private investors to finance projects that favor the circular economy (1 vote), exchange and promotion of best practices (1 vote).



Question 10:

The application possibilities of the circular economy model are evaluated very prospectively. Only one respondent believes that this model will still be limited in five years, while others believe that adoption will be much more widespread.



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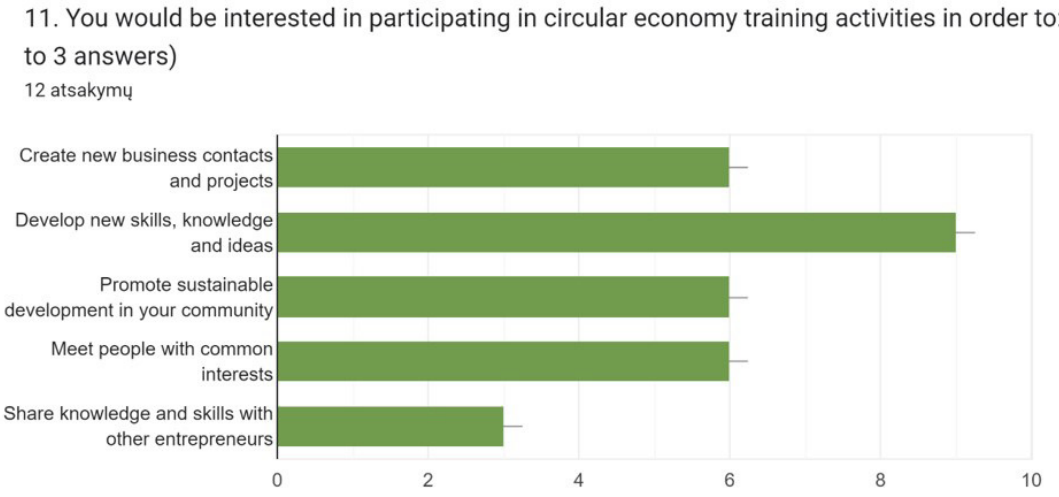
Question 11:

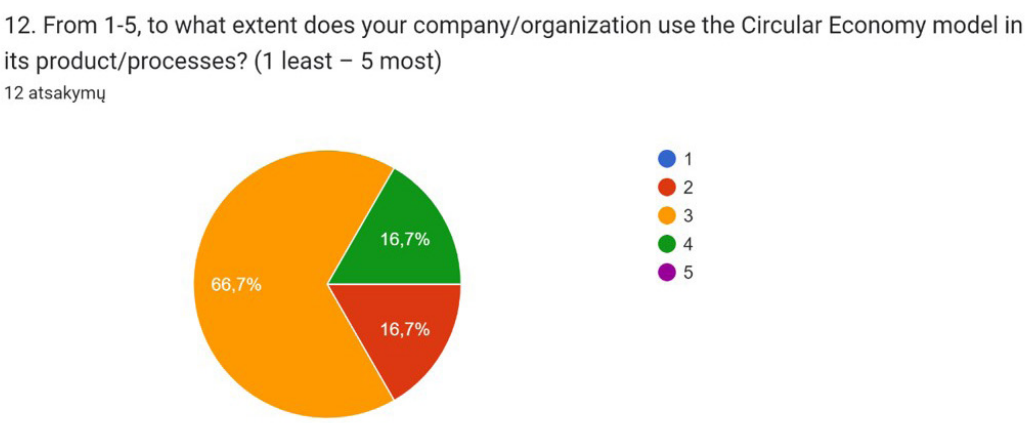
Respondents in circular economy training activities would be most encouraged to participate in the development of new skills, knowledge and ideas (9 votes), while the least interested would be the possibility of sharing knowledge and skills with other entrepreneurs (3 votes). Searching for new business contacts, developing sustainability in communities, and getting to know like-minded people received six votes each. This would indicate that there is still a lack of knowledge and skills at this stage, which needs to be filled first.



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

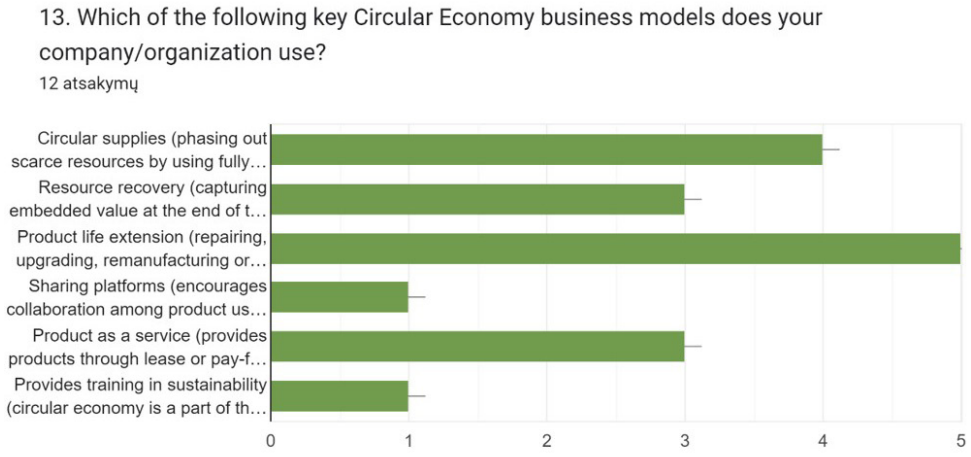
Question 12:

In the companies and organizations represented in the survey, the application of the circular economy model is in most cases a promising and expanding process. 8 respondents evaluate the current situation as average, another 2 votes are allocated for evaluation below average, and 2 respondents believe that this model is already advanced in their companies, therefore they are rated 4.



Question 13:

The most widely used business models are product life extension (5 votes) and circular supplies (4 votes). A little less, in three companies or organizations, there are resource recovery and product as a service models. The least, just one vote each, went to sharing platforms and providing training in sustainability, which was recorded by the respondent.



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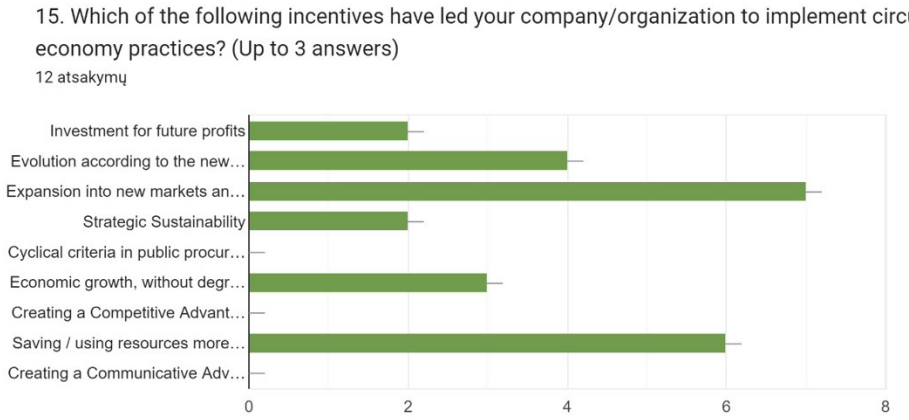
Question 14:

Regarding the most popular circular economy practices and their application in organizations and companies, disposal in special collection areas for transport to landfills receives the most attention (6 votes). Similarly popular practices are composting (4 votes), recovery of valuable materials and reuse (4 votes), purchase of products and raw materials with ecological certifications (3 votes). The following practices remained completely unmentioned: leasing-sharing procedures for final products by consumers, usage of high-efficiency mechanical equipment in the utilization of materials, resource sharing procedures and development of modular design products.

Question 15:

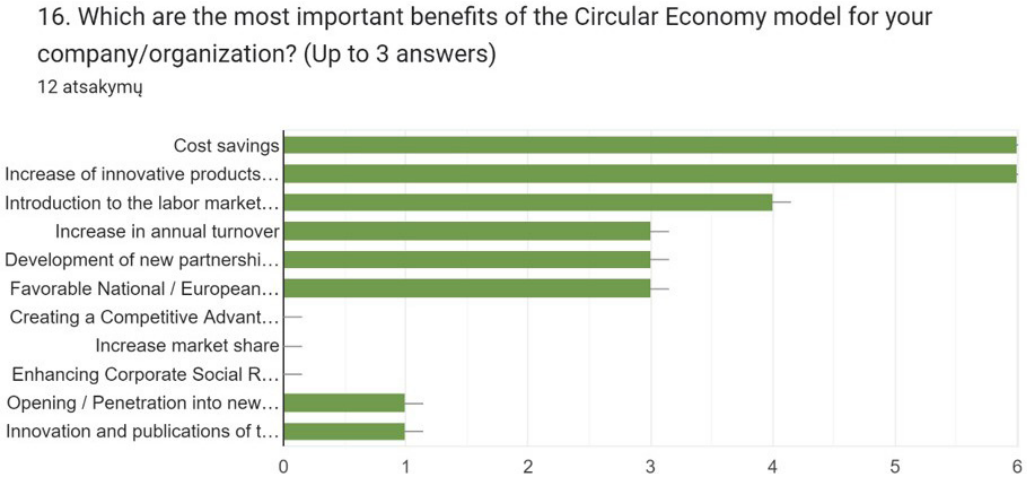
Expansion into new markets and partnerships (7 votes), saving/ using resources more efficiently (6 votes), evolution according to the new trends of the time (4 votes) are mentioned as the main factors encouraging the application of circular economy practices. Cyclical

criteria in public procurement, creating a competitive advantage and creating a communicative advantage can be considered completely insignificant.



Question 16:

The main advantages of applying circular economy model practices are cost savings and increase of innovative products and production processes (6 votes each). Similarly, the introduction to the labor market of new skills and knowledge is positively evaluated (5 votes). In 3 companies/organizations, the advantages are considered to be increase in annual turnover, favorable national/European legislation, development of new partnerships and collaborations. The two advantages mentioned in the survey remain completely unmentioned - creating a competitive advantage, increasing market share and enhancing corporate social responsibility.



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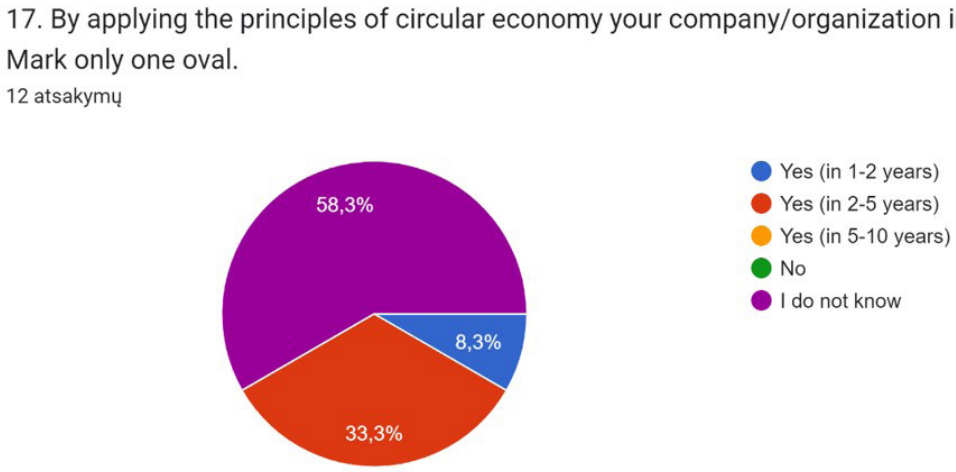
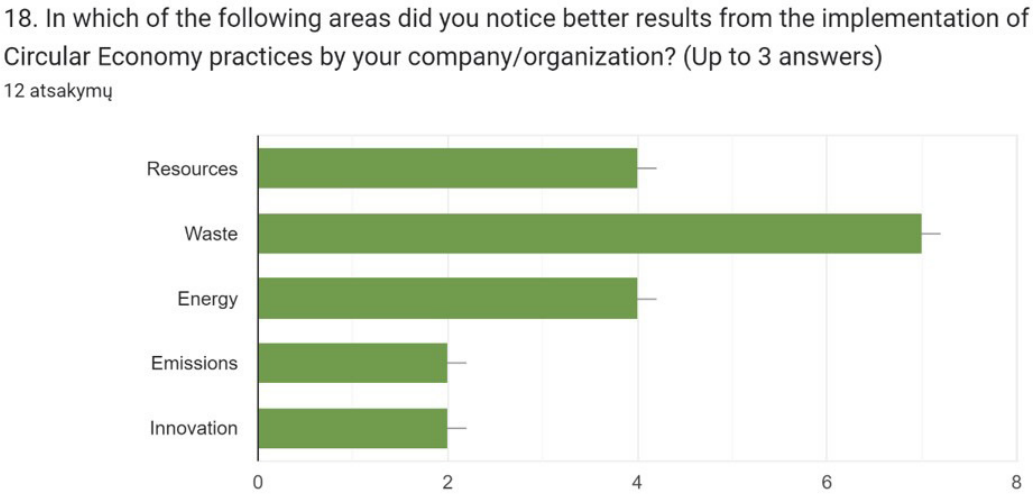
Question 17:

When answering about profits of the company/organization, a larger part of respondents, that is, 7 persons, say they have no information. Another 4 see profit opportunities in the next 2-5 years, and 1 expects profit in 1-2 years.



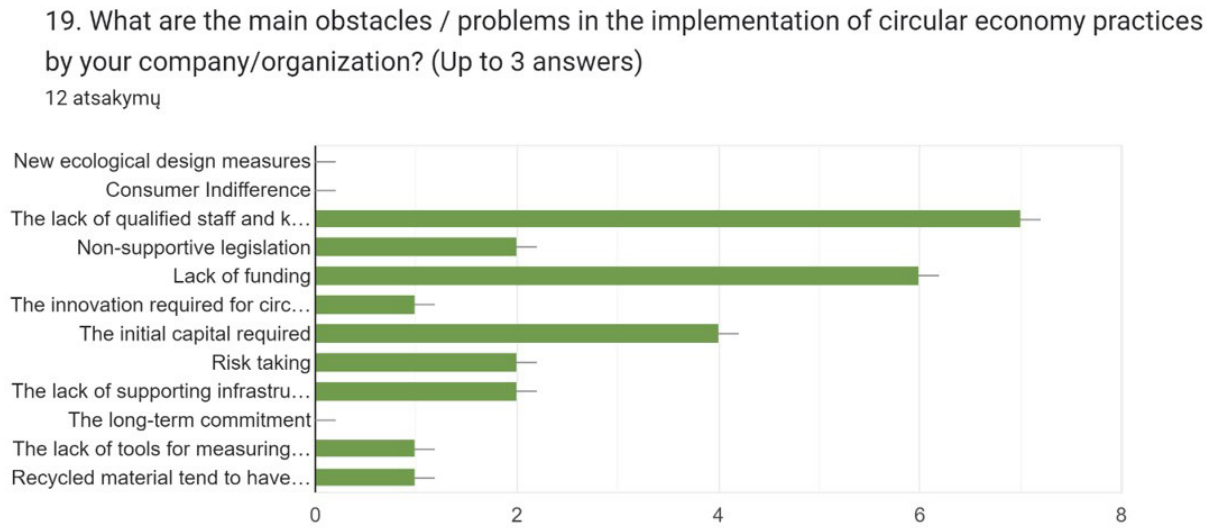
Question 18:

Respondents notice the most positive changes in the waste area (7 votes), slightly less, 4 votes each, for resources and energy areas. The least positive changes were observed in emissions and innovation (2 votes each).



Question 19:

The biggest challenge faced by companies and organizations is the lack of qualified staff and know-how (7 votes). The challenge of lack of funding is similarly evaluated (6 votes), and the initial capital required was also mentioned 4 times. New ecological design measures, consumer indifference and the long-term commitment are not seen as a problem at all - they are not mentioned even once. Also, the innovation required for circular design, the lack of tools for measuring cyclical economy progress received only 1 vote each. One respondent noticed that recycled material tends to have worse properties in comparison to the first time used material which requires some extra tests and efforts to ensure the quality of the product.



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List of best CE practices mentioned through the questionnaire:

- Composting
- Disposal in special collection areas for transport to landfills
- Purchase of products and raw materials with ecological certifications
- Manufacture of biofuels
- Recycling of materials/products/energy
- Product life cycle analysis
- Recovery of valuable materials and reuse
- Material flow analysis in the production process
- Ecological product design
- Reconstruction of useful products
- Distribution of raw material to other companies and industries
- HVAC system design in consideration of resource preservation

Among the best practices cited by respondents:

Name of good practice	Number of responses
Composting	4
Disposal in special collection areas for transport to landfills	6
Purchase of products and raw materials with ecological certifications	3
Manufacture of biofuels	1
Recycling of materials/products/energy	1
Product life cycle analysis	1
Recovery of valuable materials and reuse	4
Material flow analysis in the production process	1
Ecological product design	1
Reconstruction of useful products	1
Distribution of raw material to other companies and industries	2
HVAC system design in consideration of resource preservation	1

PART II: IDENTIFICATION OF CIRCULAR ECONOMY BEST SECTOR PRACTICES

Construction Sector		
Objectives	**Strategies**	**Practices**
Reduced resource consumption	Eco-design	Recyclability
		Easier disassembly
		Design for disassembly (DfD)
		Designing using Building Information Modeling (BIM)
		Sustainable resource sourcing
		Energy efficiency
		Renewable energy
	Process optimization	Prefabricating and modular construction (panelization and CLT)
		Just-in-time construction
		Production and distribution planning

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Distribution planning

Strategic network management

Stock and supply chain planning

Systematization of tools and optimization of costs

Automation of the order fulfillment system

Responsible consumption and procurement

Reducing transportation and footprint

Short supply chain

Logistics optimisation

Artificial intelligence algorithms

Inventory and surplus reduction

Recycling

Raw material flow management

Intensified product use	Sharing economy	Labour sharing
		Asset sharing
		Implementation of joint projects
	Short-term renting	Equipment rental
		Involving the public in the tool rental process through different initiatives
Extending life of products / components	Donating and reselling	Donating unused assets
		Exchange of unused materials
		Cross-industry collaboration and sector networks
		Cooperation with other companies at the international level
		Flexible building core
	Refurbishing	Adaptive reuse of existing buildings (land conservation)
		Future trend planning and corresponding action plan

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	Performance economy	Product as a service
Giving resources new life	Industrial ecology	Materials made from materials recycled from other industries Application of 3-D printing technology
	Recycling and composting	Designing of waste Construction waste management Use of biodegradable materials Energy efficient deconstruction and recycling Use of green energy in various stages
	Energy recovery	Construction waste as fuel Centralized heating systems Building thermic isolation Adaptation of buildings to green energy

Furniture Sector		
Objectives	**Strategies**	**Practices**
Reduced resource consumption	Eco-design	Use of natural materials and textiles
		Disposal in special collection areas for transport to landfills / landfills
		Easier disassembly
		Recycling of materials/ products /energy
		End-of-life of products Management
		Tackling premature obsolescence
		Single-material polyethylene products
	Process optimization	Inventory planning and management
		Production planning and management

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	Circular supplies
	Strategic network management
	Stock and supply chain planning
	Systematization of tools and optimization of costs
	Integrated business planning of sales and production
Responsible consumption and procurement	Recycling waste
	Raw material flow management
	Inventory and surplus reduction

Intensified product use	Sharing economy	Leasing-sharing procedures for final products by consumers Distribution of raw material to other companies and industries Sharing platforms accessible to all
	Short-term renting	All types of furniture rental
Extending life of products / components	Donating and reselling	Re-use and exchange of resources Donating unused assets
	Refurbishing	Collection and reuse of bulky waste Product life cycle analysis and extension when possible
	Performance economy	Synergic business models Purchase of products and raw materials with ecological certifications

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Giving resources new life

Industrial ecology	Resource recovery
	Raw materials from waste
	Manufactured products from 100% recycled plastic
Recycling and composting	Green energy production and waste reduction
	Composting
Energy recovery	Energy from waste
	Production from briquettes

Agri-food Sector		
Objectives	**Strategies**	**Practices**
Reduced resource consumption	Eco-design	Recyclability
		Eco-material tools and products
		Impact free agriculture
		Recovery of valuable materials and reuse
		Usage of high-efficiency mechanical equipment in the utilization of materials
		Recycling of materials/ products /energy
		Disposal in special collection areas for transport to landfills / landfills
	Process optimization	Inventory planning and management
		Production planning and management

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	Circular supplies
	Stock and supply chain planning
	Systematization of tools and optimization of costs
	Integrated business planning of sales and production
	Increased use of manures (green and animal)
	Use of crop rotations rather than inorganic fertilisers
	Solar drying of crops
	Appropriate use of pesticides
Responsible consumption and procurement	Decrease consumption highly processed foods

Intensified product use	Sharing economy	Access to lands rather than ownership
		Sharing the harvest and seeds
	Short-term renting	Equipment rental
Extending life of products / components	Donating and reselling	Re-use and exchange of resources and tools
		Healthy food donation
	Refurbishing	Collection and reuse of bulky waste
	Performance economy	Purchase of products and raw materials with ecological certifications

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Giving resources new life

Industrial ecology	Water reuse
	Biomethane from sewage sludge
	Animal-housing systems
	Full usage of raw agriculture products
Recycling and composting	Composting organic waste
Energy recovery	Green energy production (solar and wind energy mostly)
	Biofuels from used vegetable oils

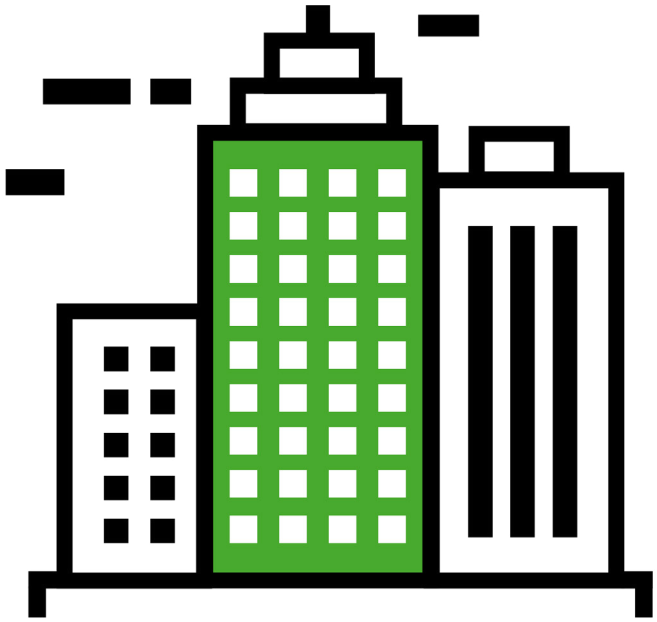
CONCLUSIONS

Lithuania is ranked 18th among the nations of the European Union in terms of the 2019 Ecological Innovation Index. The ranking of the nation has somewhat slipped from previous years, although further analysis of Lithuania's development in this area is impossible given the index's evolving methodology. However, despite the revisions made to the index's computation, Lithuania continues to rank below the average for the European Union and alternates between the categories of catching-up and moderately advanced nations. In 8 of the 5 categories of the eco-innovation index, according to the most recent analysis for 2018–2019, Lithuania holds the top spot. This is due to the country's extraordinarily high employment rate in the eco-industry, which is higher than the EU average. Additionally, Lithuania is performing well in improving resource efficiency, as evidenced by the fact that its metrics are comparable to those of the European Union as a whole (exceptionally high water productivity indicator). Lithuania lags much behind the EU average in the remaining categories (eco-innovation expenses, eco-innovation activities, and eco-innovation results).

According to experts, the nation's public investments should be focused on the development of sustainable economic growth based on the principles of the circular economy in order to accomplish national and European Union strategic goals. The amount of waste produced by production and other economic activities is rising, and Lithuania currently uses resources less efficiently than the EU average. As a result, it is necessary to improve and develop appealing investment tools for business that can support sustainable and creative management of

corporate resources. The fact that Lithuania pays insufficient attention to the promotion of circular design and design innovations as well as the creation of circular business models contributes to its gap with the leading EU nations in the area of the circular economy. Companies must plan and build new processes and models based on eco-efficiency, durability, renewal, remaking, sharing, greater reuse, and recycling in order to make the transition to a circular economy sustainably. These business models have not yet received much attention in the media, which indicates that neither policymakers nor the businesses themselves have a thorough understanding of CE or the skills required to put it into practice. A specialized knowledge dissemination center, a platform for collaboration where various interested groups would have the chance to carry out joint initiatives, develop inclusive innovations, or incorporate good circular economy practices in their activities, would also help to promote the development of the circular economy in the nation.

The survey data presented in this report also shows the direction of society towards a circular economy, but it also reveals difficulties - the lack of qualified workers and funding, and highlights the weak points of motivation tools. However, based on statistical data and experts' assessments, it is clear that positive changes are taking place, but they require a longer time.



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