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CHALLENGES OF THE INTRODUCTION OF CIRCULAR BUSINESS MODELS WITHIN RURAL SMES OF EU

INGA UVAROVA, DZINTRA ATSTAJA, VIOLA KORPA

Abstract:

Recently the circular economy has got a lot of attention within discussions of policy makers, academics and practitioners. The circular economy proposes the treatment of environmental and climate change problems, simultaneously promising benefits for the business. The circular economy promotes the reduction of the consumption and reuse or recycling of the resources that in various aspects contradicts traditional business models that stream to linear growth of sales of their products. Yet the circular economy concept has been more discussed regarding its global scale, but there is a lack of scientific discussions about the approaches of the adoption of circular economy principles on the business level. This paper conceptualises multi-level dimensions of the circular economy and highlights challenges related to the perception of the circular economy principles in the micro business level. The conducted research shows that rural SMEs of six EU countries have rarely heard about the circular economy and even less about circular business models. While rural SMEs are more familiar with the bio and green economies forming good base for developing circular business models, they are reluctant towards introducing new business models. This paper aims to assess the level of the advancement in introduction of the circular business models among rural SMEs of EU countries. This article emphasizes the circular economy as an inseparable part of the business models of rural SMEs and rural economies of EU countries. This study has a policy implication as we suggest that the government should play an important role in promotion of circular business models in rural SMEs. The existing public support system is fragmented, and in most cases just incidentally encourage rural SMEs to adopt new circular business models. Also, the circular economy on a local level, especially in rural areas, has an important role in ensuring social wellbeing of local inhabitants. The methodological approach and research results presented in the paper can be used further developing EU support system and priorities beyond 2020.

Keywords:

circular economy, circular business models, rural SMEs

JEL Classification: L26, Q57, P25

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1 Introduction

The Circular economy (CE) has received increased scholarly attention in recent years as well as the topic of the CE is high on the political agenda and in particular in Europe. The existing tendencies show that in the future more and more business and societal areas will not be able to exist without developing their business models in line with the CE principles. The CE proposes the treatment of environmental problems and climate change challenges, simultaneously promising benefits for the business. Also, it could be viewed as a response to the needs for alternatives of the linear economy with increasing consumption of products and resources. The CE seeks for opportunities to balance the industrial and economic growth with the environment, health and welfare of the society (EMF, 2012; WEF, 2014; Kirchherr et.al., 2017; Winans et.al., 2017). The transition from a linear to a circular process requires changes in the ownership, structures and other elements of business models and responsibilities. Although circular business models are widely seen at the core of the CE, there is a lack of discussions and empirical evidence applied researches around business models within the CE discourse, especially in the terms of various sectors.

While the CE is considered as the compass towards the ecological and socio-economic sustainability, there is a lack of one single definition of the CE instead providing different narratives of approaches and principles of the CE. Since adopting the CE Package, the European Commission has observed an increased uptake by corporations to adopt resource efficiency, eco-innovation and/or the CE strategies and practices. SMEs are experiencing more difficulties in adopting such strategies and practices, due to their more limited organisational, technological and financial capacity; and less access to (pre-) financing for circular solutions (KPMG, 2018). A wider range of rural entrepreneurs needs to get involved in the emerging bio-based and green change of the business. This will stimulate to diversify and revitalize the economy and create new jobs in rural areas.

New circular business models require the re-use of a waste by re-introducing it within the production as a resource. The European Commission (2015) encourage the shift to the CE highlighting the importance of the value of products, materials and resources, and extension of their use. In recent studies it is defined as a transition to business model which instead of a single use offers the re-use of products (Jorgensen & Remmen, 2018). Though, such a value proposition contradicts the general business approaches, consumption patterns and a behaviour of customers, which highlights the topicality and the problem of this research. There are still not enough scientific discussions about the active engagement of businesses and consumers as enablers of the CE. While scientists theoretically demonstrate an optimism for the development of new circular business models, there is still a lack of practical examples and evidence that entrepreneurs, especially SMEs, can innovate business models that are economically feasible and viable. Only a small part of companies has been able to adapt their business models to the CE challenges and structural changes so as to achieve a positive economic return to shareholders.

The purpose of this paper is to assess the level of the advancement in introduction of new circular business models among rural SMEs of six EU countries. There are three tasks defined to reach the objective: 1) review the concept of the CE from the business perspective, 2) explore the concept and characteristics of the circular business model, 3) critically examine the existing

situation, opportunities and challenges in the introduction of circular business models within rural SMEs.

So far, researchers concentrate discussions more on the theoretical concepts of the CE and lack investigations on practical applied business solutions (Bocken et.al., 2019; Kirchherr et.al., 2017; Winans et.al., 2017; De Jesus & Mendonca, 2018). This article shall contribute to this gap analysing the micro business environment regarding the adoption of circular business models.

This paper provides useful information for researchers as well as multi-stakeholder groups who initiates discussions on further promotion of the CE principles within SMEs. This paper identifies and analyse various challenges and opportunities of rural SMEs regarding the adoption of circular business models and provides guidelines for further support incentives and investments necessary. This article may compass policy makers in planning directions and priorities of EU financial support for SMEs, the entrepreneurship promotion and climate change treatment beyond 2020.

Accordingly, the paper is organized as follows: the next section provides an overview of previous researchers' discussions about the subject of the CE and the circular business models. The third section describes the methodological approach, the sample and data of the research explored within this paper. The fourth section provides the results and gives possible interpretations of performance differences. An overview of the main conclusions and limitations of the particular analysis are discussed in the fifth section.

2 Defining the Circular economy and circular business models

In line with the defined tasks, a more detailed analysis will be made of what is understood in the literature by the CE, different interpretations, existing and past paradigms of this subject provided. The CE is becoming an increasingly common term in everyday life in different fields (Schroeder et.al., 2019), mainly because more and more people are aware that the current way of the use of resources threatens further development of the environment and humans.

In recent decades there is a growing number of a literature on the different varieties and principles explaining the CE subject across Europe. According to De Jesus and Mendonca (2018, p .75) the CE encourage “a green structural change of the economy”.

Initially the CE concept was promoted in relation to the environmental, human health and pollution challenges as a part of low-carbon emission and sustainability development perspectives. During the last 50 years researchers and economists have developed considerable debate about “new environmental economics” which shall stand for the ecological principles, deal with environmental pollution, well-being and health of people. Boulding (1966) is seen as one of first that initiated discussions about so called the “spaceman economy” with closing the loop, recycling and linking the outputs of one production to inputs of other production, reducing the use of natural resources that are exhaustible and changing attitude of the consumption.

In 1990s China with its fast-growing industrial production made efforts in promoting the CE principles in order to reduce the environmental pollution and greenhouse effects, as well as limit the use of natural resources (Winans et.al., 2017; Wautelet, 2018).

Further recognition of the CE was facilitated by a number of activities and publications of international organizations. Following the publications of the Ellen MacArthur Foundation (EMF, 2012; EMF, 2013), the European Commission adopted series of documents for further movement of the CE policy (European Commision, 2015; Bocken et.al, 2019). With the Sustainable

Development Action Plan the European Commission have agreed to introduce the CE by 2030 (European Commission, 2015). United Nations have recognised the CE as a significant element for the sustainable development and agreed on the United Nations Sustainable Development Goals 2030 (SDG), where the SDG 12 aims to ensure sustainable consumption habits and production patterns (UN, 2016). In its recent report regarding the progress of the SDG, the UN (2019) stressed that it is critical to ensure that a need for materials does not require excessive extraction and consumption of natural resources, and at all levels it is necessary to promote policy initiatives that improve resource efficiency, reduce waste, encourage recycling and introduce sustainable practices in all economic sectors. Researchers Schroeder et.al. (2019) have proved that the CE contributes as well to some other SDGs, in particular - 6 (Clean Water and Sanitation), 7 (Affordable and Clean Energy), SDG 8 (DecentWork and Economic Growth) and SDG 15 (Life on Land). Assuming the novelty of the CE concept, the European Environmental Agency (EEA, 2016) announced that the CE requires additional investigation and better understanding of the economic, environmental and social effects, as well as the cooperation between different stakeholders and sectors in order to contribute to the knowledge base about the CE. Researchers considered that there is a finance gap for businesses that tend to focus their business models on the reduction of carbon emissions (Owen et.al, 2018; Polzin, 2017; Rizos et.al, 2016).

The group of researchers (Rizos et.al, 2016) examined barriers and challenges for SMEs to introduce the CE principles and concluded that in spite of the support and funding programmes available, there are internal and external factors that hinders development of greener SMEs, in particular, insufficient “green” consumer preferences, the lack of appropriate values, cultures and knowledge to recognise green business models. These researchers highlighted the limited capacity of SMEs to introduce technologies supporting the circular business models comparing to multinational companies with their own R&D and financial resources.

In 2018 the European Commission issued the proposal for the policy objectives and support areas of the EU Structural funds beyond 2020. One of five policy objectives proposed by the Commission aims towards the greener, low-carbon Europe promoting the CE (European Commission, 2018). The increased significance of the CE concept in the EU funds in next 7 years shall improve the public awareness about the CE and encourage the development of new circular business models among entrepreneurs.

The literature analyses shows that there is still lack of one unified and commonly agreed definition of the CE, researchers provide various definitions of the CE concept. Moreover, besides clarifying the CE concept researchers and practitioners identify new areas interrelated with the CE and highlight the necessity to investigate the case studies of the circular business models and their benefits.

Based on the literature review, the CE can be characterised as an economy that is seeking for approaches for the creation, delivery and capturing of a value separating it from the consumption of scarce resources. The CE stands for a regenerative system in which resources, waste, emissions and energy leaks are reduced by slowing down, closing and narrowing material and energy loops through maintenance, repair, reuse, renewal and recycling activities (EMF, 2015, Cudecka-Purina et.al., 2019).

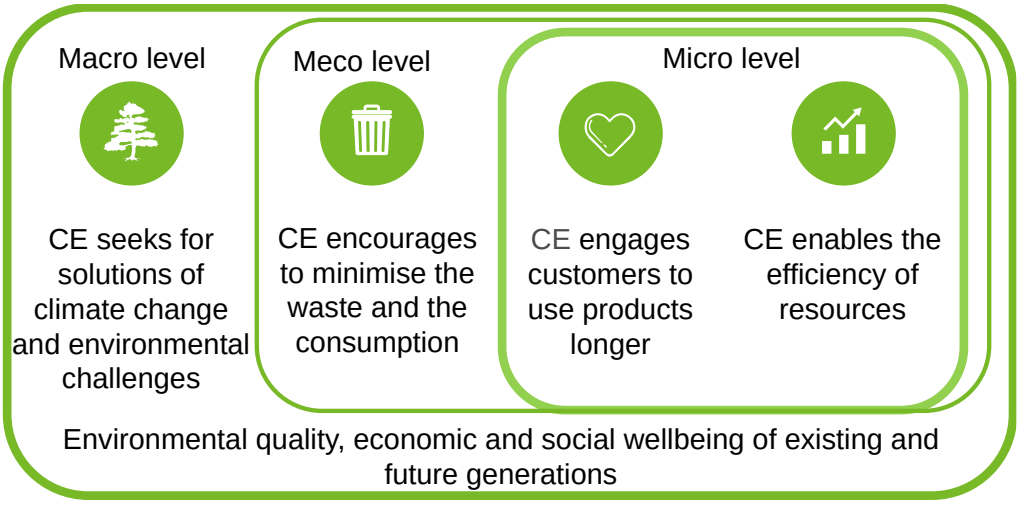
In the CE the value of products and materials is maintained for as long as possible, waste generation and resource use are being reduced. Once a product has reached the end-of-life cycle, it is used again within the economy (Kircher et.al, 2017; European Commission, 2015). The

CE contributes to the conversion of goods at the end of their use into resources for the production of other products in such reducing the amount of waste in the industrial ecosystem (Stahels, 2016; Ritzen & Sandstrom, 2017; Cudecka-Purina et.al., 2019). Namely, the nature of the CE is to ensure the most efficient use of resources in manufacturing and production, ensuring that products, materials and natural resources remain in economic circulation for as long as possible, thereby reducing the amount of waste (Bocken et.al, 2019; Uvarova et.al, 2019; Kalmykova et.al., 2018).

Researchers point out the long-term benefits of CE towards the sustainability, environmental quality, economic and social prosperity for current and future generations. The introduction of the CE in European countries can lead to the creation of new jobs, the reduced annual net resource spending by 600 billion euro, the resource productivity up to 3% and generation of a net benefit of 1,8 trillion euro annually (EMF, 2015; Schroeder et.al., 2019). However, these benefits are more highlighted on the macro and meco level regarding the treatment of the environmental and climate change challenges.

According to Kirchherr et.al. (2017) macro is regarded as the industry, national or global perspectives and meco refers to the regional or eco - industrial levels. There have been several attempts to clarify the CE concept on the global or macro and meco scale, while the micro perspective has got less attention and description in previous researches.

Figure 1: Discussion topics of CE levels



Source: created by the authors based on the literature review

On the micro level, the CE can be promoted and supported by creating new business models (Manninen et al., 2018; Schroeder et.al., 2019; Uvarova et.al, 2019). This discussion leads to the need to clarify the concept of a business model. The definitions of a business model vary from a number of questions to different elements explaining the value creation and income generation mechanisms. Initially a business model was more associated with a part of a business strategy explaining hypothetical issues about the provision of products to customers, generation of income and profits (Drucker, 1954).

Later, researchers and practitioners specified the concept of a business model through questions about the approaches of the value creation and proposition to customers, in return achieving a

certain economic value for the company and shareholders (Magretta, 2002; Chesbrough & Rosenbloom, 2002; Bocken et.al, 2018). Though both terms – a business model and a strategy - often was used with the same meaning (Richardson, 2008; Teece, 2010; Zott & Amit, 2013).

The value proposition and capturing so far remains as one of the key elements of the business model in various definitions (Teece, 2010; Zott et.al., 2011; Bocken et.al, 2014). The active development of the business start-up ecosystem during last 10 years also increased the debate between researchers and practitioners about the constituents of a business model.

The business model experienced a new renaissance after emerging of the business model Canva, which defines nine most important elements of the business model (Osterwalder& Pigneur, 2010; Urbana et.al. 2018). Several researchers have acknowledged that the business model Canva is a simple and popular tool among start-ups, academics and other business practitioners, which helps to understand the nature of business and income generation (Sean et.al., 2018; Sundah et.al., 2018).

According to the literature review, the business model can be described as the approach on how a company creates the value proposition to customers that are willing to pay and how the company generates the revenue and the profit. According to Nosratabadi et.al. (2019) the value proposition composes the essence or a core of the business model. Although several other elements of the business model play an important role, such as, identifying particular customer segments and their needs, adopting appropriate technologies and solutions to address these needs, and finding most suitable revenue streams (Teece, 2018; Bocken et.al., 2019; Chereau & Meschi, 2018).

The business model must be dynamic with the ability to respond quickly to any changes within the internal and external business environment. This leads to the discussion about new business models or business model innovations (Mishra et.al., 2015; Ucaktürk et.al., 2011; Giesen et.al., 2010). In our previous research paper, we have concluded that there is a lack of one unified definition of a business model innovation. We proposed that changes to at least two elements of business models or the introduction of a completely new business model can be considered as a business model innovation (Uvarova et.al., 2019; Uvarova & Vitola, 2019).

The need for the business model innovation is driven by new opportunities or challenges posed by the business environment. Scientists are still debating the exact nature of business model innovation and how it differs from other types of innovations. The business model innovations are interrelated with other innovations, for instance, the development of a new product may require a new value proposition for customers or the process innovations in the supply chain may affect the set-up of business activities and a partnership (Geissdoerfer et.al. 2018a; Schiavone et.al., 2019; Lahti et.al., 2018).

Summarising other researchers, the business model innovation should offer a better way than existing activities of a company and competitors for the value creation and proposition to customers. At present, for the survival and competitiveness of the company, the business model innovation is as important as introducing new products and technologies. Business model innovations can bring new customer markets, build a new long-term relationship with customers and ensure more “returning” customers (Gronum et.al. 2016; Bocken et.al, 2019).

One of further discourses of the business model is related to the sustainability, linking it with the ecological aspects and creation of sustainable values that bring economic, social and environmental benefits for the business using eco-efficiency, eco-branding and other strategies (Stubs&Coclin, 2008; Drimmelen, 2013; Bocken, 2014; Joyce, 2016). Often sustainable business

models require creativity and a design thinking in order to change traditional business approaches and find new opportunities for the revenue generation (Evans et.al., 2017; Dembek et.al., 2018; Van Bommel, 2018).

Sustainable business models are currently being studied in the context of the CE (Geissdoerfer et.al., 2018b; Maassen, 2018). A circular business model includes the CE principles in the value creation across the value chain and in the same time demonstrate economic benefits for the shareholders of a company (Manninen et.al., 2018, Lahti et.al., 2018). The business model Canva is further designed according to the principles of the CE and defined as a circular business model Canva (Kozlowski, 2018, Lewandowski, 2016, Uvarova et.al., 2019).

The circular business models create a smaller environmental footprint. OECD (2018) has concluded that although some companies with circular business models have shown rapid growth over the past 10 years, they still represent a relatively small share of the overall market.

According to EMF (2012), business models are the drivers of the circularity of companies. However, it is still argued if business model innovations enable the CE or vice versa (Uvarova et.al., 2019). There are successful examples of companies adopting business model innovations in pursuing towards better circularity, but there are rather other motives that encourage entrepreneurs to change (Lahti et.al., 2018).

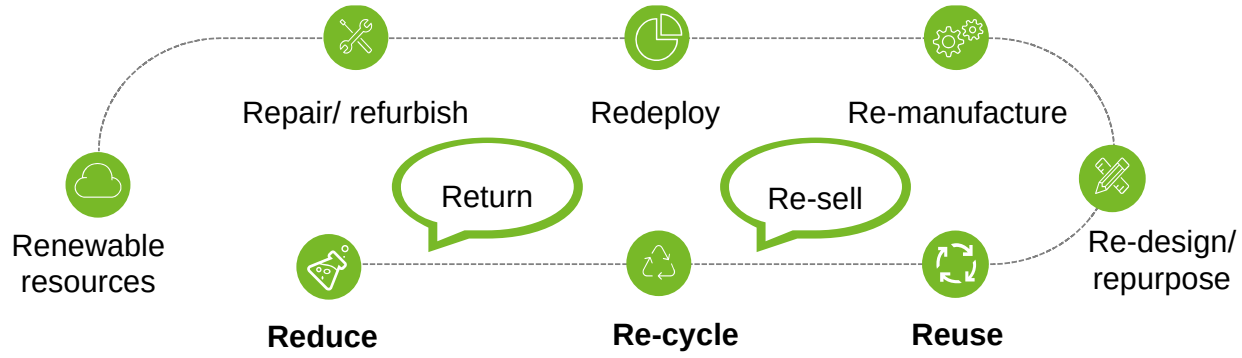
OECD (2018) is confident that technologies, supportive customer preferences and new business risks shall play an important role in encouraging the adoption of the circular business models in nearest future. The circular business models shall encourage the anti-consumption habits of consumers (Nosratabadi et.al., 2019; Bernardi&Tirabeni, 2018).

Circular business models can provide many opportunities for entrepreneurs, such as new innovations, stimulation of the productivity, efficiency and business growth, but these statements still need further investigation in order to proof their feasibility (Schroeder et.al., 2019; EMF, 2015). The circular business models care of the value triangle of the circular value system captures the benefits for customers, partners or suppliers, social actors and a company itself (Nosratabadi et.al., 2019; Biloslavo et.al., 2018).

3R principles (reduce, recycle, reuse) are most frequently mentioned in relation to the type of activities within circular business models. Though researchers are creative with finding new “Rs”, which shows multi-dimensional aspects of them and proofs the need for further investigation, and explanation of these principles.

Reuse is mainly regarded when the whole product is used in the same or other possible way. Refurbishment is related to some improvements, cleaning or minor repair of the product in order to extend its use. The redeployment foresees further use of just working parts of the product. Re-manufacturing requires more efforts and resources as it return the product to “like-new” or better performance which may be accompanied with the new warranty (Benton et.al., 2014).

Figure 2: 10R key activities of the circular business models



Source: *created by the authors based on the literature review*

Literature review provides different explanations for the meaning of the re-design. EMF (2015) highlights that the design shall ensure longer utility and higher quality of the product, its components or materials.

Recycling converts the waste into the reusable product or a resource. There can be different recycling processes that may combine reuse, repair or redeployment of particular products that otherwise would be thrown away as a waste. If the quality and the value of recycled material or product is reduced this is defined as the downcycling and vice versa upcycling increases the economic value and a quality of a new product gained (EMF, 2015).

3 Methodological framework

This paper mainly presents findings of the research done within the project “Regional policies for innovation driven competitiveness and growth of rural SMEs – INNOGROW” (2016-2021). According to the empirical-basis, additional in-depth analysis was done to assess the level of the advancement in introduction of new circular business models among rural SMEs.

The research covered six EU countries of Northern, Central and Southern Europe, in particular, Italy, Czech Republic, Latvia, Slovenia, Hungary and Bulgaria. According to the classification of EU Cohesion policy there were different regions selected from less developed to more developed regions in order to ensure diverse representation of analysed territories. There was one region from each country selected for the analyses, except Italy where two regions were analysed.

The EU urban-rural typology was used to select and define the rural regions. Most of regions selected for the analyses are considered as predominantly rural with more than 50% of all inhabitants living in rural areas. In order to ensure more verifiable and comparable results of the research, three regions selected for the analyses are having the rural population between 20% and 50%.

In spite of the majority of rural regions analysed in the research, their economic structure and SMEs represent different industries and sectors. While some of regions are having high share of primary agrarian production, there are also regions with a significant share of manufacturing (secondary production) and some with a developed tertiary (service) sector. In order to classify the regions, the statistical analysis was used for processing the statistical data of each region.

Table 1: Matrix of the economic structure of the regions analysed in the research

		Share of agriculture (NACE A)		
		High	Medium	Low
Share of manufacturing (NACE C)	High	-	Pardubice (Czech Republic) Nyugat-Dunantul (Hungary)	Gorenjska (Slovenia)
	Medium	Zemgale (Latvia)	Beam Zagora (Bulgaria)	Lombardia (Italy)
	Low	-	Molise (Italy)	-

Source: prepared by the authors based on Eurostat data

Seven stakeholders' consultation meetings were organised throughout all regions covered by the research. The aim of the stakeholders' consultation meetings was to build consensus and ensure support by a broader regional audience with regard to the support for the promotion of innovations and new business models in the rural SMEs, among others having specific attention to the CE and circular business models. In total 215 persons participated in stakeholders' consultation meetings and on average 31 person were consulted per each region. In each stakeholders' consultation meeting several smaller focus group discussions were organised ensuring participation of approximately 7 to 10 persons in each. All interested stakeholders were able to participate in the focus group discussions. Before the meetings stakeholder mapping was done in each region in order to identify and invite diverse range of stakeholders, in particular representing: SMEs of different fields or sectors according to the statistical classification of NACE codes, policy makers of the local, regional and national levels, stakeholders from the business associations as well as academic, research and other non-governmental institutions. There were unified guidelines developed for the organisation and facilitation of focus groups discussions in all regions with similar tasks and questions for the participants of the discussion. Followed by these guidelines focus group discussions supplied unified and comparable data, views and information from each represented region. Participants of the focus group discussions expressed views, discussed and quantitatively assessed bottlenecks, challenges, opportunities and further support needed to promote the introduction of innovations and new circular business models in the rural SMEs. In order to carry out the qualitative data analyses of the results of focus group discussions we used the grounded theory approach with axial and selecting coding. Participants quantitatively assessed most and least possible innovations and new circular business models that can be adopted in rural SMEs of each region, and these data were used in the statistical analyses. There were several semi-structured interviews conducted in order to acquire additional detailed information regarding the specifics of particular regions and gain opinions of experts about the results and findings of the focus group discussions.

During the research the theory-based evaluation method (the theory of change) was used to design the possible changes, support needed and the relevance of proposed actions towards the perceived needs of rural SMEs regarding the adoption of innovations and new business models.

4 Findings and discussion

The conducted research shows that rural SMEs of six analysed EU countries have rarely heard about the CE and even less about circular business models. While rural SMEs are more familiar with the bio and green economies forming good base for developing circular business models, they are reluctant towards introducing new business models or business model innovations.

In the analyses main challenges and barriers for rural SMEs to adopt new circular business models has been identified: lack of innovation culture, experience and skills; slow adaptation to rapidly changing market conditions; lack of highly qualified employees; seasonality, especially in an agriculture and related industries; low profitability and long period of economic ROI (return on investments); lack of cooperation between rural SMEs and other sectors; support for innovations fragmented and targeted mainly to medium and large companies not SMEs; lack of support programmes targeted to non-agricultural companies and development of circular business models; administrative bureaucracy in public support programmes. The obstacles show further necessity to support rural SMEs in changing their mindset towards the CE and improving their capacity to be able to introduce new technologies required by particular circular business models. Also, other researchers have examined several similar barriers for circular business models, in particular, lack of technical know-how and expertise, lack of information, data and case studies, lack of practice and expertise to create durable and high quality products (Vermunt et.al. 2019; Govindan & Hasanagic, 2018; Kirchherr et.al.2018; Todeschini et.al. 2017; Ritzen & Sandstrom, 2017; De Jesus & Mendonça, 2018; Adams et.al., 2017). This research contributes to existing knowledge, notably by specifying barriers to the deployment of circular business models, and complements new conclusions to previous studies, by identifying the contextual and procedural barriers.

Educational and informational activities are important to further educate the society and business representatives on the approaches, best practices and benefits of the CE and circular business models. Researchers Atstaja et.al. (2017) have confirmed that environmental issues become more important among entrepreneurs in ensuring international competitiveness and there is existing need to improve ability of entrepreneurs in understanding these issues.

Moreover, these findings are closely aligned with the conclusions of the Rizos et.al. (2016), where they categorised main barriers for introduction of the CE principles in SMEs. Not appropriate internal culture and attitude of managers and employees of a company, lack of funding and information, technological know-how and the support within the supply chain were the main obstacles for SMEs to introduce the CE mentioned by Rizos et.al (2016).

The particular study also highlights potential threats for rural SMEs to introduce new circular business models: no continuity in policies and measures to support the development of innovations; SMEs focus on the lowest price not on the quality improvement; support programmes are not flexible for the rapid change of innovations and developing trends of circular business models; underdeveloped cooperation among SMEs for sales promotion in foreign markets, which is important to ensure sufficient and positive cashflow and positive financial ratios; highly skilled workforce stay or move to urban areas and thus rural SMEs lack knowledgeable experts that would understand the principles and business approaches of the circular economy; growing international competition, raising wages and resource costs; climate change challenges, especially in agriculture; insufficient investment in infrastructure in the regions.

According to theoretical foundations, this can be explained by the limited understanding of circular business models within the society, the limited possibilities for entrepreneurs to take on new risks and allocate the substantial investments needed for development innovative technologies supporting principles of circularity. Also, lack of researches on the case studies and best practice examples that would work as the circularity enablers for various stakeholders, in particular, entrepreneurs, investors, government and customers.

In our previous research paper (Uvarova & Vitola, 2019) we categorised all the challenges in five groups and provided overall description of each category. However, it is important to distinguish specifics of each region analysed as the economic structure and specialisation differs region by region. The table below summarises perspectives of the stakeholders of the focus groups discussions about the specific challenges or barriers faced, opportunities to be used and enablers provided in each region.

Table 2: Challenges, opportunities and enabler of rural SMEs to introduce new circular business models

Region	Challenges	Opportunities	Enabler
Lombardia, Italy	Lack of innovation culture to introduce new circular business models Fragmentation and no continuity of the innovation promotion initiatives, also in relation to green or circular businesses Bureaucratic or administrative burden in support programmes Lack of territorial coordination	Innovation of traditional products (e.g. functional food) Organic farming and biotechnologies Development of online marketing and a product traceability system Diversification of services and products of rural SMEs	Promotion of ecosystem services - organic farming, biotechnology Promotion of urban – rural partnerships Financing for R&D and innovations in rural SMEs, in particular non-agricultural Innovation platforms and training for rural SMEs to engage them in innovations, the CE and new circular business models
Molise, Italy	Low profitability of rural SMEs Fragile economy Underdeveloped infrastructure and insufficient investment for its development Environmental and social functions of rural SMEs not recognised by the society and business representatives	Revitalisation of the regional brand "Piacere Molise" for promoting products produced in this region Promotion of introducing digital technologies Wider marketing opportunities using ICT technologies	Consultations and information on support available to rural SMEs Support for digital and content marketing Support for partnership platforms (using shared economy benefits) Branding and marketing of particular rural areas
Nyugat-Dunantul, Hungary	Lack of innovation culture Lack of support for the introduction of innovations and new circular business models Short duration of calls and no permanent innovation support programmes Lack of coordination of non-financial (consulting) support	Innovative food processing technologies Organic farming, renewable resources and environment friendly businesses Agro-tourism and new forms of logistics for agro-farms Digital marketing and other innovative approaches to promote circular business approach and products	Support for innovations in rural SMEs (from European Regional Development Fund) Support for the development of innovations and new circular business models in the agricultural logistics programmes Support for a creation of prototypes of new biodynamic and organic products Innovation networks and consultations on registration of Intellectual Property rights
Zemgale, Latvia	Lack of innovation culture to introduce new circular business	Innovative food processing technologies	Support for diverse forms of partnership

Region	Challenges	Opportunities	Enabler
	models Low capacity for internationalisation Lack of workforce, in general, not just highly qualified employees Insufficient collaboration between SMEs, science and governance institutions Bureaucratic or administrative burden in support programmes	Organic farming and renewable resources Digital technologies for logistics and marketing Promotion of authentic and handicraft products using natural local (environment friendly) resources	Support for accession of wider local and international markets Information and training on the CE as well as new circular business models in rural SMEs Simplified application procedures in the innovation and circular business support programmes
Pardubice, Czech Republic	Bureaucratic or administrative burden in support programmes Underdeveloped accessibility and ICT infrastructure within rural areas Lack of knowledge about innovation support possibilities Weak innovation networks and partnerships	Organic farming and biotechnologies Use of the renewable resources Precision agriculture Traceability systems for internal products processing and supply management	Support for the infrastructure development inr oder to improve the accessibility and mobility Innovation networks and platforms for rural SMEs Consultations and training on innovation support possibilities Simplified application procedures in the innovation and circular business support programmes
Gorenjska, Slovenia	Lack of partnership among SMEs Environmental and social functions of rural SMEs not recognised by the society and business representatives Limited learning possibilities for rural SMEs Lack of experience and skills to cooperate with large retail chains, international consumers and other partners	Diversification of services and products of rural SMEs Organic farming Recognition of social and environmental functions performed by rural SMEs Various types of partnership Accessible learning opportunities for rural entrepreneurs	Training on innovations, new circular business models and ICT Support for partnership platforms (using shared economy benefits) Support for the diversification of business models and activities Support for sales agents and other sales promotion activities
Stara Zagora, Bulgaria	Lack of highly qualified employees Bureaucratic or administrative burden in public support programmes Insufficient collaboration between SMEs, science and governance institutions within innovation development Insufficient coordination and cooperation between institutions providing support for innovations and development of circular business models Low capacity for internationalisation and sales promotion to larger customers	Historical heritage for local rural-tourism opportunities Digital marketing and other innovative approaches Sales agents and promotion of sales in international markets Introduction of flexible working hours	Support for SMEs having “Seal of Excellence” Support for diverse forms of partnership Promotion of technology transfer from scientific institutions to SMEs Coordination of innovation support measures and programmes Innovation networks and consultations on registration of Intellectual Property rights and trademarks Information and consultations on the development and fundraising for adoption of new circular business models Support for accession of wider local and international markets

Source: prepared by the authors

Furthermore, according to empirical data there is a widespread opinion that most of rural SMEs are related to the agriculture, while there is a significant share of SMEs that are not related to the agriculture having industrial production or services. Also, the society, especially smaller farmers, consider that the agriculture is more traditional and less innovative industry.

The research demonstrates that in case of the agriculture, there are a number of opportunities to develop innovations and new circular business models, for instance, in relation to the precision and smart agriculture, food traceability systems, etc. These incentives allow better traceability of the extraction of raw materials and resources which is important in relation to use of natural and renewable resources within the CE.

Creation of the “enterprise hubs” in rural regions is one of mechanisms suggested for stimulating the adoption of innovations and new circular business models within rural SMEs. Such “enterprise hubs” may ensure expertise to support rural SMEs in various areas, such as the circular economy principles, eco business principles, corporate social responsibility, legal framework, promotion of innovative solutions among rural SMEs, assistance in applying for different grants, preparation of business plans and market researches, and other. Also, the special events for presenting the importance and benefits of the CE, introduction of innovations and new circular business models in the rural SMEs can promote their circularity and enable new opportunities. Managers and owners of rural SMEs are reluctant towards the adoption of new technologies, innovations and new circular business models, but they should be encouraged to change attitude towards innovations and adopt them into their own businesses. As a good example for introduction of such a policy support instrument can be found in the United Kingdom with the network of rural hubs.

Also, other researchers highlighted similar barriers for circular business models related to the market and supply chains, in particular, the lack of information exchange between supply chain actors, lack of partners, bad re-use practice and reluctance of re-using resources gained from third parties, lack of consumer interest in circular business models (Vermund et.al., 2019; Mishara et.al., 2018; Govindan& Hasanagic, 2018; De Jesus & Mendonça, 2018; Adams et.al., 2017; Todeschini et.al., 2017).

Overall awareness about the environmental values and the impact of the circular economy on the business performance is extremely important. Awareness raising of not just existing entrepreneurs, but as well potential entrepreneurs shall be start already from schools. Researchers Atstaja et.al (2017) highlight the challenges which universities face in developing students’ ability to appreciate sustainability and environmental knowledge and values. Also, these researchers stress that the improvement of the environmental awareness require similar attention and efforts like the development of other specific skills, but also ensure such competences as system and critical thinking, creativity and dynamic capability vital for any entrepreneur willing to develop new circular business models (Atstaja et.al, 2017).

Regarding the awareness and competence of entrepreneurs, the lack of knowledge about the technology of recycling process, the use of circular materials in production process, lack of standards and guidelines for quality of refurbishment products, and the legal aspects related to circular business models are some of barriers identified by other researchers (Vermunt et.al, 2019; Kirchherr et.al., 2018; Ranta et.al., 2018). During the research process acquired data discover an information support is necessary both concerning the broader society and particular social groups. This information support can take a whole variety of forms - publications and programs in mass media, development of informative and educational websites (or sections in

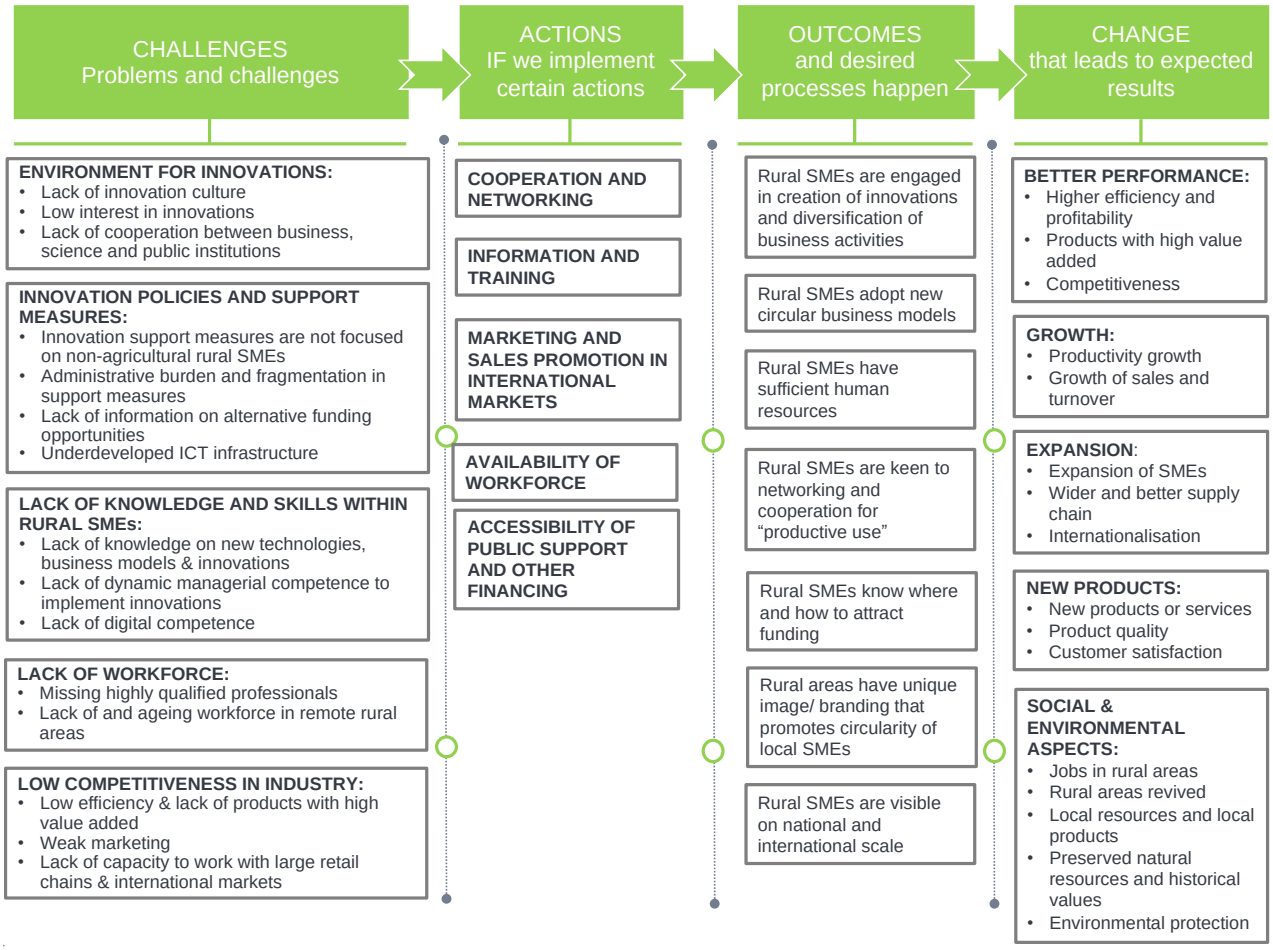
websites), social advertisements, seminars and consultations. The way must be found to raise the awareness and knowledge level for different groups of social agents, especially entrepreneurs.
The knowledge about these issues and the attitude of entrepreneurs can play a crucial role in these processes. The financial success of a SME is the main motivational force for the majority of entrepreneurs.
There are still unused opportunities for the attraction of external funding for rural SMEs for the development of innovations and new circular business models. The CE and circular business models are new subjects as well for the financial institutions and investors. They still consider this development direction as not feasible and not profitable, usually more associated with small local, home-based production. The funding from private sources could be easier obtained, as the investment plan for Europe is currently active. As the CE bears not just the business and economic development function, but as well provides social and environmental protection benefits, there should be more opportunities from the public funding (regional, national grants and EU funds) to support the introduction of new circular business models into rural SMEs. Rural SMEs are not experienced in using alternative funding sources, such as business angels, venture capital funds, crowd funding platforms and other. And from other hand, such funding partners or investors usually do not recognize any attractive investment opportunities within rural SMEs considering them as not perspective and not scalable businesses. The provision of more information about the experience and successful cases in the attraction of an alternative funding for development of successful new circular business ideas could embolden both rural SMEs and investors. The analyses show that rural SMEs have low credibility and financial capacity. Also, researcher Harter (2019) proved the problematic of low profit rates of companies located away from metropolitan cities or other population centres with the lower density of consumers. Other researchers have mentioned similar barriers for circular business models, in particular, lack of financial resources, high up-front costs and requirement of high investments related to the introduction of new circular business models (Vermunt et.al, 2019; Govindan& Hasanagic, 2018; Mishra et.al., 2018; Ormazabal et.al., 2018, De Jesus & Mendonça, 2018; Adams et.al., 2017).
It is important to stimulate and improve the operational efficiency and profitability of rural SMEs by searching of new markets, especially external, improving customer satisfaction that motivates returning customers. Our research proves the need to extend and broaden the marketing activities that shows and clarifies the benefits of circular business models to consumers. The research shows that at present there is a lack of information, knowledge and studies of the real benefits gained by all the parties involved.
As regards the support available, the policy-making bodies shall consider the diversification of funding sources for rural SMEs that promote the job creation and access of foreign markets. Currently the EU support is mainly provided under rural development programmes and focus on comparatively larger agricultural enterprises, the specific support should be assigned for small rural SMEs operating both in the primary (e.g. agriculture, forestry, animal husbandry and aquaculture) and tertiary sectors. The increase of the support for the adoption of new circular business models within rural SMEs would promote their entry into new markets and an increase of a number of jobs. Researchers (Herceg & Vuksanovic, 2017) have proved that an export and government subsidies are significant factors that lead to the technological progress of companies in traditional sectors, like agriculture. Also, these researchers displayed the challenge of low knowledge and insufficient investments in educating entrepreneurs about the discovery,

innovation and technological progress, especially in traditional sectors like agriculture, which lately result in excessive usage of labor, inadequate usage of a capital and low financial return.
Additionally, the policy-making institutions should create better platforms for the direct communication with rural SMEs in order to better understand their needs and develop policy measures more targeted towards these needs. Also, researchers Atstaja et.al. (2017) highlight the necessity of the economic policy that more precisely incorporates the principles of the green economy and green business, as well as encourage the change of the exiting patterns of consumption of natural resources and energy.
Other researchers (Vermunt et.al., 2019) mention the lack of policy incentives that encourage entrepreneurs to separate waste and further assume and use it as a competitive resource. In some cases, entrepreneurs are hampered by legislation to use waste as a resource. Also, these researchers examine the market gap in the accessibility of financing, often banks and investors are not willing to invest in some circular business models (Vermunt et.al., 2019).
Analyses shows that introduction of innovations and new circular business models brings a number of effects leading to an increase of the competitiveness of rural SMEs, for instance:

- A new way of work brings additional investment opportunities,
- A new way to communicate with the customers and carry out marketing activities, in particular, using digital solutions,
- Instead of introducing new products, the circular business models suggest introducing new value proposition for customers based on the CE principles,
- Possibilities to optimize the logistics, production, marketing and other costs, avoiding of unnecessary packaging and promoting it as a part of the “decreasing waste” strategy,
- Diversification of services/ products and offers to customers,
- Introduction of the social responsibility policy,
- Increase of the efficiency and sales,
- Widening cooperation.

In long run the introduction of circular business models shall result in an improvement of the profitability ratios, for instance, return on assets (ROA), which in financial terms demonstrates the increase of the competitiveness.
According to the existing data the theory of change is built trying to capture all processes and outcomes in a single diagram. It presents relationship between the expected inputs and outcomes towards the growth of the competitiveness of rural SMEs through the adoption of new circular business models. The theory of change summarizes main challenges faced by rural SMEs, further opportunities as potential activities to be implemented, outcomes and further processes, which should contribute towards changes aimed. The theory of change allows evaluation of the relevance of proposed actions towards the perceived needs of rural SMEs regarding the adoption of new circular business models. It can be used further as the base for the development of the support incentives beyond 2020.

Figure 3: The theory of change of the support interventions necessary



Source: prepared by the authors

The OECD (2018) in its report has indicated the need for an appropriate public policy and support aimed at preventing identified challenges.

Other researchers (Vermut et.al., 2019) have revealed that policy makers should create several strategies appropriate for different circular business models. Also, these researchers confirm that further researches are necessary to investigate how barriers and challenges differ between several circular business models, assuming more detailed classification of internal and external barriers.

Moreover, the transition towards new circular business models require fundamental change of several internal factors in micro business level. Therefore, it is important for entrepreneurs to acknowledge the importance of the CE principles and further incorporate them in the business strategy. Other researchers are also confident about the need to incorporate the CE into the vision, mission, goals and key performance indicators of the company (Kirchherr et.al., 2018; Agyemang et.al., 2019).

According to the theoretical considerations the development of circular business models can be attained using two approaches – compulsion or facilitation. So, there are coercive instruments vs. facilitative instruments.

5 Conclusions

The purpose of this study was to investigate the advancement and opportunities for the introduction of new circular business models among rural SMEs and identify the support necessary to promote further development and the circularity of rural SMEs. The research contributes to the more in-depth analysis of the CE concept on the micro business level and the interrelation of the circularity and the business model. It is observed that rural SMEs around Europe face similar problems and barriers in adopting new circular business models. The subject of the CE is very important for the economy and a business, and it plays important role in the society.

During the research process obtained data discover problematic issues. The CE lacks studies on the nature of circular business models and case studies of their introduction into businesses. An improvement of understanding about the circular business models shall contribute to their introduction into rural SMEs.

There is a lack of researches explaining the “3R” principles. A common understanding of the interpretation of the 3R principles (re-use, reduce, recycle) shall facilitate further introduction of a circular business models within companies.

The introduction of circular business models in the medium term is inevitable for rural SMEs and will be driven by technological developments, the emergence of new business risks and the change of values.

Lack of the appropriate environment and support measures is one of the main challenges in successful development and introduction of innovations and new circular business models in rural SMEs.

Insufficient knowledge and skills (know-how), as well as lack of dynamic capability is an important obstacle that hinders the adoption of new business models based on the CE principles.

The low credibility and financial performance limit the investment possibilities to set up new technologies for the development and adoption of the circular business models.

The availability of the workforce, both highly and low qualified, is a crucial challenge for rural SMEs in most of regions requiring further intervention with the public support from the government side.

An introduction of circular business models provides benefits for rural SMEs, but there is a need for further researches to proof the feasibility and viability of circular business models.

Strategic objectives of EU and support directions of EU structural funds beyond 2020 shall be seen as an important driver for further promotion of the circularity of rural SMEs and the development of new circular business models.

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