

TRIFOLD APPROACH TO CIRCULAR ECONOMY: FROM THE PROJECT TO THE CURRICULA

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ABSTRACT/ *This study aims to present the framework for the implementation of an Erasmus+ project in which higher education institutions from Bulgaria, Romania, Turkey and Serbia are partnering. The project focuses on the circular economy from Ch. point of three important subjects: academia, business and society. Through a deductive method of research, the main stages of development of the project in its first year are presented. The main result is reaching a curriculum of an academic course for teaching the issues of circular economy to students with a profile in administration, management and economic sciences. In the search for synergy between academic centers on the Balkan Peninsula, three levels of project results are reached: Reference book on Circular Economy for teachers, Repertory on Circular Economy for students, Handbook on Circular Economy Challenges to business and society.*

KEYWORDS: *Circular economy, renewables, environmental standards, curriculum, public responsibility, waste processing*

JEL CLASSIFICATION: A23, H41, Q20, Q56

INTRODUCTION

The circular economy is a viable and promising alternative to the currently prevailing linear economic system. The fact that there is a world with limited resources includes the need to adopt a sustainable economic system (Zahariev, et al., 2020a) where sustainable processes must be a priority. Therefore, in this context of limited resources, the circular economy only strives for economic growth (Bezgin, et al., 2022f) if it is achieved in a sustainable way by keeping resources within closed cycles for as long as possible.

In this regard, the approved for funding under the Erasmus+ program entitled Trifold approach to circular economy: perspectives of academia, business and wider society (project acronym CRCLEcon and number 2022-1-BG01-KA220-HED-000085464) aims to explore the aspects of the circular economy in detail and in different aspects – students, academic staff, businessmen and community activists. As a result of the project, a visualized summary results for the main identified challenges was proposed. The foundation of the work in the first year of the project is the preparation of a curriculum of an academic course for teaching the issues of the circular economy. Based on the curriculum, an academic course should be written by the project experts to complement the traditional training of students (Zahariev, et al., 2022a) with an administration profile, management and business sciences with new topics in the field of green transition, environmental standards, renewable energy sources and the latest technologies for collection and secondary use of raw materials. Achieving a synergy (Ivanovic-Djukic, Zahariev, & Lepojevic, 2021e) between academic centers on the Balkan Peninsula – Bucharest, Istanbul, Nis and Svishtov provides a drawing of three vectors with project results: Reference book on Circular Economy for teachers, Repertory on Circular Economy for students, Handbook on Circular Economy Challenges to business and society.

1. PROJECT PHILOSOPHY

The overall objective of the project is to present the implications and introduce solutions to the challenges of the circular economy in an adapted way, bringing together students from different social categories with a focus on those who are discouraged and lagging behind their peers. This will be done by providing training materials and organising a series of activities and joint workshops. The specific objectives of the project are: Study of the components of the circular economy from the point of view of teachers; Research of the components of the circular economy from the perspective of students; Study the challenges of the circular economy for business and society as a whole.

In this way, the link between priorities and objectives of the project is achieved, as follows:

- Inclusion and diversity: Closing the gap between students who follow their path of improvement and those who are discouraged by social or economic reasons;
- Environment and combating climate change: To stimulate circular economy education and seize the opportunity to model the concepts and principles of the circular economy as a whole school to strengthen the vision of a sustainable world;
- Stimulating innovative learning and teaching practices: To explore new collaborative models to provide additional knowledge for society's circular economy.



Figure 1. Logo and visualization on the project

Source: (Project visualization output)

The innovation of the project is ensured by following cutting-edge approaches and environmental principles:

First. Educational institutions are the key to driving new greener and greener thinking and action. Education is key to changing the attitudes of future generations (Cascio & Boudreau, 2017). People need to instill the need for recycling and reduction and think about the needs of the planet before their own needs. Also to answer big questions like how people can turn to greener energy and reduce carbon emissions with the limited resources available to planet earth, the worsening climate crisis and humanity's unsustainable lifestyles. Universities are also critical factors for the socio-economic development of regions through knowledge creation, knowledge sharing, community development and innovation (Barrios, Benmelech, Hochberg, Sapienza, & Zingales, 2021), especially after the Covid-19 pandemic. (Zahariev, Zaharieva, Mihaylova, & Nikolova, 2022f) They are more receptive to the application of circular concepts.

Second. Highlighting the links between innovation and the circular economy. The circular economy concept is the solution to solving pollution and resource scarcity, as well as tackling climate challenges (Bogdanov, 2019). The full deployment of a circular economy represents a radical change and, as such, especially given the ongoing functioning of our economic systems, requires innovative ways of rethinking production systems and consumption. A circular economy can certainly be facilitated by innovation (Cascio & Boudreau, 2017), in particular through the introduction of new technologies and the design of innovative business models.

Third. A look at emerging needs for new skills. The growing importance of the circular economy will have a significant impact on the shape of jobs and competences (Krastevich & Smokova, 2021). The new highlights will include "broad skills" such as digital and environmental literacy (Zahariev, Mihaylova, Monev, & Dikov, 2021b) and problem-solving, while building "in-depth skills" more relevant to specific functions or disciplines. Non-repetitive, circular jobs will emphasize skills such as product repair and maintenance or innovation in the product design process to improve longevity (UNESCO, 2023).

2. INITIAL RESULTS AND SYNERGY

The project is a continuation of the efforts of the partners to provide effective training aimed at future problems and to ensure that students are appropriately prepared, both in terms of the challenges of technology transfer and in terms of social reasonableness and responsibility.

Through the project, partners explore various strategies aimed at compensating for the inadequacy created by students' waning enthusiasm in a complex educational environment (Zahariev, Simeonov, & Zaharieva, 2021c) as a result of the epidemic and the upcoming socio-economic problems in much of Europe. The circular economy represents the latest attempt to conceptualise the integration of economic activity and environmental well-being in a sustainable way. The transition to a circular economy is one of the biggest challenges to creating a more sustainable society (Armstrong, 2014). Cross-program learning is fundamental to understanding the ways in which social, economic and environmental systems interact to sustain and sustain human life, valuing and respecting the diversity of views and values that influence sustainable development and participating critically and acting creatively in defining more sustainable lifestyles. Sustainability education (Briscoe, Schuler, & Claus, 2009) develops the knowledge, skills, values and world views needed by people to act in ways that contribute to more sustainable living patterns. Sustainable development education is forward-looking, focusing on protecting the environment and creating a more environmentally and socially just world through informed action. Actions that support more sustainable living patterns require consideration of environmental, social, cultural and economic systems and their interdependence.

The circular economy enables the further development of society to preserve the environment and resources for the next generations. The concept of cycling is fully in line with the purpose of our basic principle of education systems, that is, to guide the development of a complete and complete person. Education and awareness of circulation require interdisciplinary teaching (Zahariev, 2012), not only the transfer of theoretical knowledge, but above all for the development of socially and environmentally appropriate attitudes. A proper understanding of the impact of our consumption (linear economy) on the world will help young people make more sustainable choices as they get older (The circular collective, 2021). One of the levers in this perspective is training and education. It is crucial that industry, professionals, students and future

economic decision-makers realize the importance of these environmental challenges, but also the environmental impact of economic and industrial activities. It is therefore necessary to have courses, seminars and lifelong learning programmes covering these topics (Zahariev, Laktionova, Zaharieva, & Kostov, 2022b). Thus, due to internationalization, working even with a single foreign country will lead students to an opportunity to compare situations and views and thus ignore differences. The presence of more than two countries leads to the formation, on a generalised basis, of the relevant representations which may be acceptable as a comprehensive package by the students.



Figure 2. Partner network for the project

Source: (Project visualization output)

Against this background, the first result of the work on the project is the achievement of a construction of the course aimed at academic teachers, which should be developed in four parts and relevant learning topics to them:

Part 1. Insights from existing curricula about circular economy (Curricula for certain areas of study; Concerned topics; Common characteristics – length in hours, ratio lectures / exercises, etc.)

Part 2. Methodologic remarks on teaching on circular economy (Lecture goals and methods; Setting learning objectives; Evaluation aspects)

Part 3. Distinctions and patterns related to teaching disadvantaged or discouraged students (Circular Economy as alternative model of growth for a sustainable future; “Bottom-up” change through education; Transition to Circular Economy – roles and impact).

Part 4. Branch specific considerations on circular economy (Branch 1. Circular economy in the glass industry; Branch 2. Circular economy for plastics and plastic products; Branch 3. Circular economy for ferrous and non-ferrous metals; Branch 4. Circular economy for secondary production of paper and cardboard).

There is no doubt for the project team that higher education plays a vital role in the global transition to a circular economy. The circular economy is a new economic model that works in a holistic way to address complex social and environmental challenges. A key objective of any university with Economic profile is to prepare the next generation of leaders to address these

challenges by embedding circular economy concepts in the curricula and processes of all universities around the world.

Universities are increasingly rethinking their role in the twenty-first century and seeking to both respond better to societal needs and become agents of change to solve global challenges. Academic institutions also provide individuals with professional and personal skills and abilities. They have access to large concentrations of young and curious people who are passionate, creative and eager for a better world. Despite the availability of curricular content on the specifics of the circular economy, there is still little room for student orientation, individual initiative and real touch to specific problems and ways to solve them. Thus, students receive mainly theoretical information and remain deprived of exercising something practical. This is a particularly acute challenge for students who experience economic and social problems and are discouraged about their career prospects. In this regard, the project team identified the following needs of the target students: an improved but adapted explanation of the components, values, processes and cycles of the circular economy; To be supported by people who know well the aspects and trends of the economy influenced by environmental constraints to shape their necessary abilities when they join the labour market after completing training; To be trained in a close to the real business environment on some basic things that can be applied to address the challenges of the circular economy; To be allowed to try practical actions to meet the needs of the business, taking into account the scarcity of natural resources and thus be supported in the deployment of their creativity and innovation; Meet peers with similar challenges and exchange experiences to explore their strengths; To be provided with various practical examples that they could follow to resolve situations they might encounter after graduation.

On this basis, the project groups logically include the following categories:

First. Direct beneficiaries, including those from families with economic difficulties, who are discouraged about their career prospects and who tend to miss their chances of finding the right positions in the changed working environment caused by the circular economy due to loss of common sense with their peers; Students wishing to master their abilities to address the challenges of the circular economy, as well as to test approaches to intervention in practice

Second. Indirect beneficiaries of which. University teachers at participating higher education institutions who teach subjects not directly related to economics and environmental challenges, gaining an overview of further scientific demand; Entrepreneurs who recognize the complexity, problems, but also business opportunities defined by the circular economy.

The framework of the project activity, implemented through the relevant work packages, is designed to meet the needs aimed at intervention. Overall, the project provides an easy-to-understand and attractive approach to the challenges and benefits of the circular economy, adapted to students and facilitates the understanding of complex processes in the economy and the environment. In this way, the specific objectives of the project are chosen so that each of them covers two of the envisaged needs:

- Exploring the components of the circular economy from a faculty perspective – to provide an improved and adapted explanation of the important elements of the circular economy and to shape the necessary abilities of students when they join the labour market
- Exploring the components of the circular economy from the perspective of students – to introduce basic things that could be applied in a close to the real business environment, as well as to give students space for practicing
- Explore the challenges of the circular economy facing business and the wider society – to provide a variety of examples that students can follow to resolve situations they may face after graduation, as well as to exchange experiences with external experts and colleagues

Actions within the project considered as a means of meeting these needs consist of developing adapted learning content for the target students and a series of workshops where the final beneficiaries are involved in practical cooperation.

CONCLUSION

The main course of action of academic institutions in the training of students in the field of circular economy is the development of vital awareness and understanding of the challenges of technological development in a world with exhaustible resources, ore deposits and minerals. That is why the EU's funding of project networks of higher education institutions through the Erasmus+ programme allows: Strengthening the sense of belonging to a larger and stronger community; Setting higher demands for cost transparency and publicity of results, making achievements broader; Linking partners for a longer period in terms of ownership of results; Easing academic organizations financially that still have deteriorating budget indicators due to the pandemic and subsequent multiple crises; Providing an example of international cooperation on the basis of jointly created thematic, administrative and project documents; Increasing responsibility for grant financing and seeking better value for money in the context of the transition to a greener and more efficient economy. The network of four partners from Balkan countries has an ambitious goal to offer new academic content on the problem of the green economy, which will have a triple addressee: educational institutions, business and society as a whole. The success of the project should be a logical consequence of the motivation and work of the teams of experts from universities in Bucharest, Istanbul, Nis and Svishtov.

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