

Pilot course on “Environmental labelling in circular economy”
Poland, Rzeszów 04.02.2021

The model of circular economy

Bożydar Ziótkowski, PhD, Dariusz Wyrwa, PhD
Rzeszów University of Technology
Faculty of Management
ul. Powstańców Warszawy 10
35-959 Rzeszów, Poland
bozydarz@prz.edu.pl, dwyrwa@prz.edu.pl

Foundation of the circular economy (1966)

Kenneth Ewart Boulding
 Economist, Educator, Peace activist,
 Philosopher (1910-1993)

The world economy = ecosphere

open economy = cowboy economy

- illimitable and exploitative resources
- consumption and production is considered as good
- maximization of consumption and production as well as the throughput of production factors
- the gross national product (GNP)
- the gross world product (GWP)

closed economy = spaceman economy

- limited reservoirs of extraction or for pollution
- consumption and production is bad
- minimization of consumption and production
- stock maintenance in good nature, extent, quality, and complexity

K. E. Boulding, The Economics of the Coming Spaceship Earth, 1966.

Circular economy - definitions

Circular economy “new way of thinking about material flows, production and patterns of consumption” [1]

“aims at transforming waste into resources and at bridging production and consumption activities” [2]

“a vision of an economic system without waste that runs on renewable energy” [3]

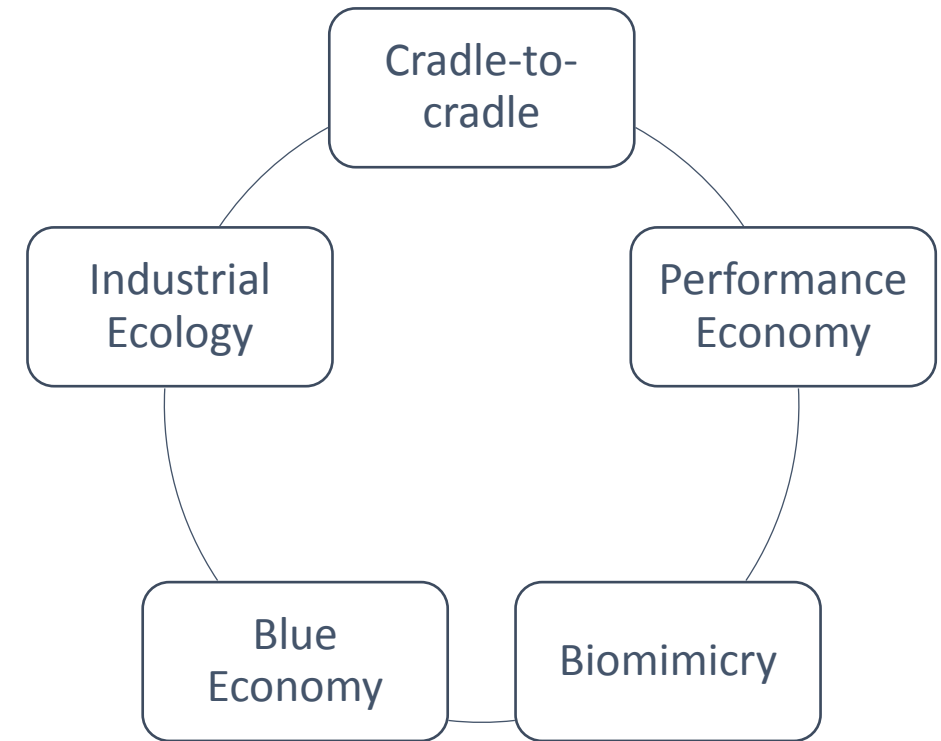
[1] R. Church, N. Ahmed, K. Benifand, *Re-imagining the Future: The Biomimetic Economy*, [in] Proceedings of RSD3, Third Symposium of Relating Systems Thinking to Design Oslo 2014.

[2] S. Witjes, R. Lozano, Towards a more Circular Economy: Proposing a framework linking sustainable public procurement and sustainable business models, „Resources, Conservation and Recycling” 2016, Vol.112, pp. 37–44.

[3] T. Nyström, Adaptive Design for Circular Business Models in the Automotive Manufacturing Industry, 2019, https://www.ri.se/sites/default/files/2019-10/Adaptive%20Design%20for%20Circular%20Business%20Models%20in%20the%20Automotive%20Manufacturing%20Industry_1.pdf, 02.09.2020.

Circular economy – umbrella concept

“A circular economy describes an economic system that is based on **business models** which replace the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/ distribution and consumption processes, thus operating at the **micro level** (products, companies, consumers), **meso level** (eco-industrial parks) and **macro level** (city, region, nation and beyond), with the aim to accomplish **sustainable development**, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations.” [1]



[2]

[1] Kirchherr J., Reike D., Hekkert M., Conceptualizing the circular economy: An analysis of 114 definitions, „Resources, Conservation and Recycling”, 2017, t.127, s. 221–232.

[2] Own presentation.

Circular economy - areas

- **EPR** (extended producer responsibility)

goal: development of products placed on the market.

- **TAX** (taxation system)

goal: supporting the use of renewable resources (secondary raw materials).

- **GPP** (green public procurement)

goal: to increase the share of eco-innovation in the economy.

Bachorz M., Barczak P., i Schindler J., *Polska droga do gospodarki o obiegu zamkniętym: opis sytuacji i rekomendacje*, s. n, s.l, 2017.

Circular economy - policy mechanisms

- “Environmental Management System (EMS),
- Green Public Procurement (GPP),
- Eco-design Directive,
- Ecolabel and Energy Label,
- Environmental Technology Verification (ETV)”

A. Grinnall, S. Burnett, First catch your fish: Designing a “Low Energy Fish” Label, „Sustainability” 2015, Vol. 7, No 5, pp. 6086–6101.

The circular economy policy in the EU

2010 – „**Waste management** has been a **central element of EU environmental policy during the past 30 years** through a number of environmental action plans and a body of legislation on waste aiming to make Europe more resource efficient (European Commission, 2010).”

2013 – European Commission’s **review of the waste management targets in the EU waste legislation** resulted in sad conclusions.

2014 – European Commission’s Circular Economy Package, a **legislative proposal aiming amand six waste directives** i.e. on **waste** (Directive 2008/98/EC), on **packaging and packaging waste** (Directive 94/62/EC), on the **landfill of waste** (Directive 1999/31/EC), on **end-of-life vehicles** (Directive 2000/53/EC), on **batteries and accumulators and waste batteries and accumulators** (Directive 2006/66/EC), and on **waste electrical and electronic equipment** (Directive 2012/19/EU), altogether with Communication „Towards a circular economy: A zero waste programme for Europe” - targets and policy framework for a circular economy (maximising the business benefits from resource efficiency).

Rizos V., Behrens A., Kafyke T., Hirschnitz-Garbers M., Ioannou A., i Centre for European Policy Studies (Brussels B., The circular economy: barriers and opportunities for SMEs, 2015, <http://www.ceps.eu/system/files/WD412%20GreenEconet%20SMEs%20Circular%20Economy.pdf>.
 European Commission (2010), “Being wise with waste: the EU’s approach to waste management”
 European Commission (2013b), “Roadmap - Review of Waste Policy and Legislation”
 European Commission (2014a), “Towards a circular economy: A zero waste programme for Europe”, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2014) 398 final, Brussels.

The circular economy policy in the EU

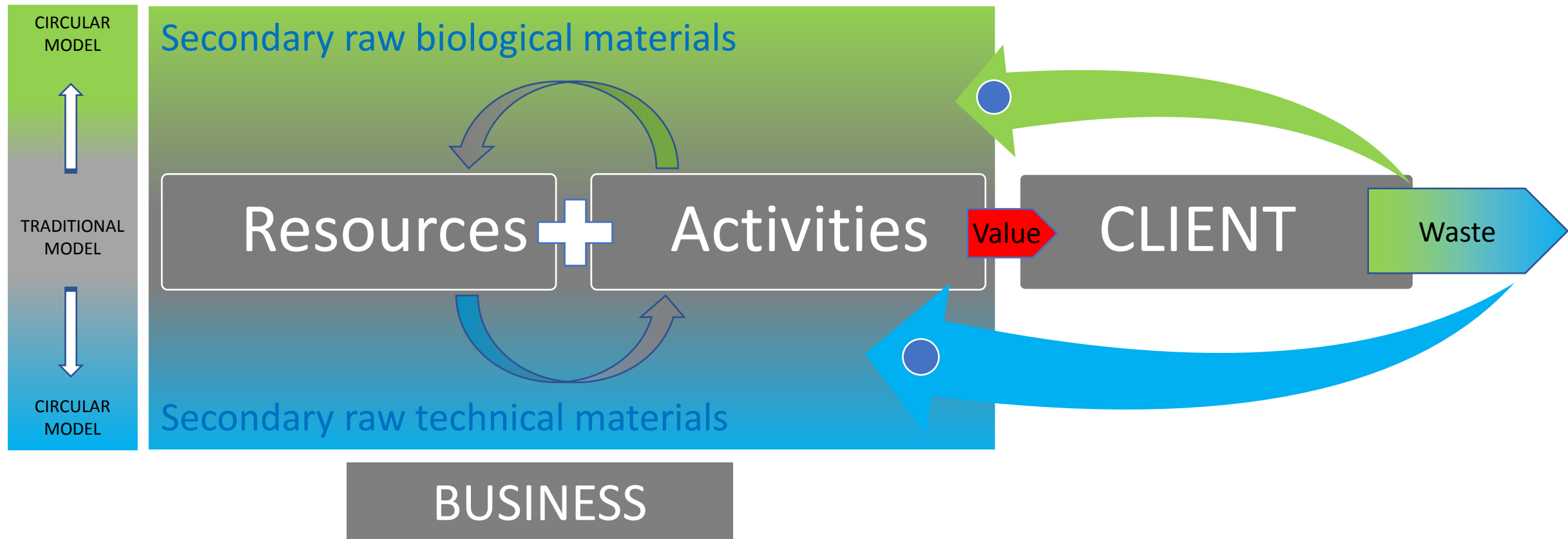
2014 – European Commission withdraws Circular Economy Package because it „**had a rather exclusive focus on waste management, without appropriately exploring synergies with other policies**” European Commission (2015, p. 1) and introduces a new circular economy strategy (European Commission 2014b), a more ambitious proposal in boosting jobs and growth, by means of the tools that remove barriers and allow to develop new markets and business models.

2015 – new Circular Economy (CE) Package titled „Circular Economy Strategy Closing the loop” COM (2015) with revision of waste legislation action plan for the Circular Economy titled „*Closing the loop - An EU action plan for the Circular Economy*” COM(2015) 614 final.

2020 – new Circular Economy Action Plan.

Rizos V., Behrens A., Kafyke T., Hirschnitz-Garbers M., Ioannou A., i Centre for European Policy Studies (Brussels B., *The circular economy: barriers and opportunities for SMEs*, 2015, <http://www.ceps.eu/system/files/WD412%20GreenEconet%20SMEs%20Circular%20Economy.pdf>.
 European Commission (2015), “Roadmap – Circular Economy Strategy”
 European Commission (2014b), “ANNEX to the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Commission Work Programme 2015 – A New Start”, ANNEX 2, COM(2014) 910 final, Brussels.

Circular economy - business models (activities)



[1] Own presentation.

Circular economy - business models (activities)

Activities in CE business models according to the Ellen MacArthur Foundation and the EC - ReSOLVE classification:

- "**Regenerate**: use of renewable energy and raw materials in production processes, preservation and reconstruction of ecosystems, return of recovered biological resources to the biosphere,
- **share**: sharing real estate (e.g. rooms) and movable property (e.g. cars), extending the life of products through proper design and use, reusing products,
- **optimise**: increasing the efficiency of production processes, minimizing waste generation, using large data sets and automation,
- **loop**: through recycling, reuse of components, recovery of biochemical components from biowaste,
- **virtualise**: indirect (e.g. online shopping) and direct (e.g. books and records in a dematerialized version),
- **exchange**: including the use of new technologies (e.g. 3D printing), dissemination of new transport business models (e.g. electric and autonomous vehicles, multimodal transport, hyperloop technologies), new products and services and substitutes for non-renewable raw materials. "[1]

[1] Mapa drogowa transformacji w kierunku gospodarki o obiegu zamkniętym. Załącznik do uchwały Rady Ministrów z dnia 10.09.2019 w sprawie przyjęcia Mapy drogowej transformacji w kierunku gospodarki o obiegu zamkniętym

Thank you for attention



Project website: <https://ecolabelling.prz.edu.pl/en/>

The International Visegrad Fund website: <https://www.visegradfund.org/>

ECOLABELLING

INNOVATIONS IN CIRCULAR ECONOMY - ENVIRONMENTAL LABELS AND DECLARATIONS (ID: 21920002)

INTERNATIONAL RESEARCH PROJECT TEAM

APPLICANT AND LEADER OF THE PROJECT
Rzeszów University of Technology

RZESZÓW UNIVERSITY OF TECHNOLOGY

PARTNERS OF THE PROJECT

- University of Novi Sad
- Technical University of Košice
- The Institute of Technology and Business in České Budějovice
- Széchenyi István University

THE PROJECT IS SUPPORTED BY THE INTERNATIONAL VISEGRAD FUND

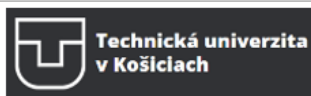
The project is co-financed by the Governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from International Visegrad Fund. The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

THE INTERNATIONAL VISEGRAD FUND WEBSITE:
<https://www.visegradfund.org/>

supported by

- Visegrad Fund

PROJECT WEBSITES:
<https://ecolabelling.prz.edu.pl/>
<https://ecolabelling.prz.edu.pl/>



ECOLABELLING project
Innovations in circular economy – environmental labels and declarations