

<https://doi.org/10.7250/CONNECT.2023.110>

ORIGINS OF THE CONCEPT OF CIRCULAR ECONOMY AND ITS EVOLUTION

Elena Cristina RADA^{1*}

¹ Department of Theoretical and Applied Sciences – DiSTA, Insubria University, 2100, Varese, Italy

* **Corresponding author.** E-mail address: elena.rada@uninsubria.it

Abstract – The first concepts connected with the material circularity have been introduced through the terms of Industrial Symbiosis and Industrial Ecology since the 1940s. In 1947 Renner, G. included in his works the term of ‘reuse – exchange’ as processes by which waste or by-products of an industry or industrial processes become the raw materials for another one (exchange). In 1966, Economy in Washington – with the paper ‘The Economics of the Coming Spaceship Earth’ presented the idea of a circular loop for the materials, considering open and closed systems. Moreover, in the 1970s, Stahel, W. R. introduced the concept with the expression ‘cradle-to-cradle’ in opposition with ‘cradle-to-grave’. As a consequence of the environmental revolution, the industrial ecology gained more and more importance. In the 1980s, Frosh, R. A. proposed an analogy of natural ecosystems, for the eco-industrial ones: in addition to reducing the production of wastes, they should maximize the efficient use of residue materials and end-of-life products, as an input for other production processes. In 1994, Pauli, G. in ‘Zero Emissions Research and Initiatives’ divided the economic models in three: red, green and blue economy. Later, Ayres went ahead using the metaphor of the biosphere (ecology) – technosphere (economy), followed by Biomimicry of Benyus, thanks to the ‘Spiral of Life’. At the end of the 19th and the beginning of the 20th centuries, the Linear Economy based on the terms take, make, consume, throw away was introduced. Its development is connected with the technological innovations encouraged by the growing scientific development increased productivity and promoted the progress of the linear economy. The Circular Economy, was introduced in 2015 by the European Union, and its aim is connected with the concept of: a) more efficient and sustainable use of resources; b) new integrated model of production, distribution and consumption.

Keywords – *Circular economy; environment; evolution, sustainability; waste management*