Ouverture de 'Circular Economy & New Business Models'*

*Daniela M. Salvioni***, *Silvio M. Brondoni****

Abstract

Circular economy business models essentially fall into two main groups: (1) models focused on reorienting traditional business, and (2) models that involve creating a new business specifically aimed at recovering resources.

The timing and ways of transforming an old business into a circular one could find useful drivers in a systemic approach that involves policy makers and legislators to implement effective regulations and incentives, the financial sector, public authorities and civil society.

By converse, big global corporations often develop circular economy within a company's network. From this perspective, some companies are specifically oriented towards recycling, while other companies belonging to the same group use raw materials obtained from recycling, thus gaining an extensive competitive advantage for all the network's companies (competitive circular economy).

Keywords: Circular Economy; Business Models; Stakeholder Engagement; Sustainability; Competitive Circular Economy; Global Competition; Global Markets

1. Overture

For a long time, companies have favored the linear economic model of acquisition, transformation, sale, and disposal, sometimes involving a planned obsolescence of durable goods (Brondoni, 2018).

A stronger orientation towards corporate social responsibility and sustainability, combined with the increase in price volatility and the need to reduce the environmental impact of production, consumption and disposal, leads to rethink business models in favor of circular economy (CE).

The circular economy aims to reduce resource input, as well as waste, emissions and energy losses, through product design, maintenance, repair and reuse, regeneration, reconditioning and recycling.

The challenge for socially responsible companies is therefore to develop new business models, which emphasize the ability to meet the stakeholders' expectations and impose an unprecedented alignment of technological and social factors. This radical change reflects the improvement of companies and the environmental impact

* The Authors: Salvioni, D. M. §§ 1, 2, Brondoni, S. M. § 3
** Full Professor of Business Administration, University of Brescia (daniela.salvioni@unibs.it)
*** Editor-in-Chief Symphonya. Emerging Issues in Management (silvio.brondoni@unicusano.it)

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of products, based on a responsible design, which relies on renewable energies and the reduction of waste and toxic chemicals.

Circular economy business models essentially fall into two main groups: (1) models that promote the use of renewable resources, reuse and extend useful life through repair, remanufacturing, upgrades and adaptation; and (2) models that transform old goods into new ones by recycling materials. These two main groups can then be traced back to models focused on the type of activity actually developed.

In this sense, for example, Accenture identifies five main types of "circular business models", united by the absence of the traditional constraints of a linear economy and precisely (Accenture, 2014):

- The Circular supply model: based on supplying renewable, recyclable, or biodegradable resource inputs that underpin circular production and consumption systems. Through it, companies replace linear resource approaches and phase out the use of scarce resources while cutting waste, and removing inefficiencies.
- The Resource recovery model: leverages new technologies and capabilities to recover almost any type of resource output at a level of value equivalent to, or even above, that of the initial investment. Solutions range from industrial symbiosis to integrated closed loops recycling and Cradle-to-Cradle designs where disposed products can be reprocessed into new or new raw materials.
- The Product life extension model: allows companies to extend the lifecycle of products and assets. Instead, values that would otherwise be lost through wasted materials are maintained or even improved by repairing, upgrading, remanufacturing or remarketing products.
- The Sharing platform model: promotes a collaborative platform among product users, either individuals or organizations. This facilitates the sharing of overcapacity or underutilization, increasing productivity and user value creation.
- The Product as a service model: focused on the opportunity for companies to allow the use of the product, retaining ownership, as an alternative to the traditional model of "buy and own". This approach turns incentives for product durability and upgradability upside down including long-term repair and maintenance.

Instead, the European Investment Bank considers three circular business model categories, each of which focuses on a different phase of the value chain: (a) the design and manufacturing phase; (b) the use phase, and (c) the value recovery phase (EIB, 2018).

As can be seen, the two approaches mentioned above represent a specification of the reported division respectively associated with use of renewable resources, reuse and prolongation of useful life through repair, regeneration, upgrades and adaptations, or the recovery of raw materials through new production processes aimed at the transformation of disused assets. Both models require an active orientation towards social responsibility and sustainability, aim at maximizing resource efficiency, and presuppose effective stakeholder engagement processes. The first model is strictly focused on reorienting traditional business along the entire

supply chain; the second involves creating a new business specifically aimed at recovering resources that would otherwise be lost. In this sense, in the first case we can speak of CE Business Model Innovation, in the second of new CE businesses.

2. The CE Business Model Innovation

The CE business model innovation implies a governance orientation based on social responsibility and aimed at preserving and improving natural capital by controlling finite stocks and balancing the flows of renewable resources (Ellen McArthur Foundation, 2012). Furthermore, the model presupposes the optimization of resource yields by optimizing the life of products, components and materials with maximum utility and value at all times within the technical and biological cycles, as well as promoting the effectiveness of the system through stakeholder engagement and dissemination of a coherent culture.

The United Nations Industrial Development Organization defines circular economy as «an industrial economy that routes materials, parts and products back into use several times and creates more value and less waste. It is an alternative in which value is maintained for as long as possible, products are designed to last, and the generation of waste is minimized» (UNIDO, 2019). This way of doing business requires an improvement of corporate governance in order to give value to the relationships among different performance drivers, emphasizing the risk management system for an effective responsible and circular business conduct (OECD, 2018; Salvioni & Gennari, 2019).

According to the CE, the management of business therefore requires the commitment of the corporate governance bodies, which define strategies and related acceptable risks, plan goals, develop internal codes of conduct and control systems. In other words, the corporate governance structures and processes significantly influence the business model innovation (Salvioni et al., 2018).

The implementation of a CE model requires radical changes, focused on sustainability best practices, which require a combination of multiple business models and design strategies, approaches, methods and tools (Bocken et al., 2016; Salvioni & Gennari, 2017). In this regard, it is necessary to define valid strategies for the business as a whole, address specific aspects of products/services typical of the company development and activate effective stakeholder engagement processes (Freeman, 1994; Mitchell et al., 1997; Greenwood, 2007; Barone et al., 2013; Freeman, & Dmytriyev, 2017).

Moving to a circular business model can be challenging, especially for companies whose structures, strategies, operations and supply chains are deeply rooted in the linear approach (EIB, 2018).

The transition to a circular economy has above all economic values, associated with the fact that production processes first need to transform from linear to circular. This generally requires initial investments, modification of processes, raw materials, equipment and outputs, retraining of personnel and coordination within the value chain, integration and sharing with all relevant stakeholders (Salvioni & Bosetti, 2014; Gennari & Salvioni, 2019).

Each circular business model requires a specific configuration of existing and new capabilities to function optimally. It is necessary to review the corporate planning and strategy and do take action on product/service innovation and development, as well as on sourcing and manufacturing, sales and marketing. It is therefore necessary to reset the existing business which, starting from the company mission, reconsiders its development in relation to the particular conditions of circularity.

Setting up the model inevitably implies the development of specific skills and sensibilities, a clear orientation to social responsibility and sustainability, takes time and costs money. Companies must take into account the integration of economic, social and environmental performance with a medium-long term orientation and, possibly, find short-term revenue streams to finance the change.

In fact, business model innovation offers companies high potential to increase their ability to create value over time while respecting the environment and enhancing the expectations of their customers. Many of the changes, however, would not be possible without the introduction of specific internal functions (e.g., CSR committees) (Salvioni & Gennari, 2019) and the support of new innovative technologies (e.g., digital ones).

The success of the transformation is measured in a cost-benefit analysis primarily based on the financial value for the stakeholders involved, which can also incorporate non-financial values for the stakeholders and society.

From an economic/financial point of view, the circular model should increase resource productivity, reduce production costs and increase competitiveness, create new market and investment opportunities, increase consumer loyalty and increase long-term supply availability (UNIDO, 2019). However, there are generally long payback periods, which are typically identified as key barriers to the adoption of circular business models.

Therefore, the ability to pay back the investment assumes importance, which – depending on the use of renewable resources, the reduction of waste and inefficiencies, and the best integration with its stakeholders – should be positive but extended over time. This may involve the gradual implementation of the new business model, which evolves over time as capabilities are developed and the right market conditions mature (Accenture, 2014).

The timing and ways of implementing circular business models could find useful drivers in a systemic approach that involves policy makers and legislators to implement effective regulations and incentives, the financial sector, public authorities and civil society. In this regard, an EIB study on access to finance for projects supporting the circular economy shows that:

> □ *on access-to-finance for projects supporting the circular economy made the case that the private sector as a whole is by nature geared towards short-term gains (and also generally risk-averse). As commodity prices increase, so will the demand for innovations that increase resource efficiency. Therefore, many businesses are likely to wait until high commodity prices create the business case for CE transitions. This has not prevented many established companies and start-ups from seeking competitive*

advantages with innovative circular business models that capture value in new market segments, and succeeding in doing so. Besides the economic advantage brought by being perceived as an innovator on the market, the consideration of environmental costs/externalities and societal value creation makes the CE case even more compelling. This however still remains the exception rather than the rule, which is mostly explained by the fact that there is no level playing field for circular businesses to compete with linear businesses on the market. Increased customer awareness about the need and rationale for a more circular economy will likely change this situation with time, as will companies' increasing understanding of the need to hedge material supply risks and price volatility.

The above-mentioned EIB study concluded that market forces alone could create a circular economy but with the risk of a slow transition and high opportunity costs. Public sector intervention and support is therefore essential in order to (i) pre-empt potential supply crises; (ii) reduce the EU's dependence on strategic imported resources (as discussed above); and (iii) realise the societal and environmental benefits from a transition to a circular economy. The transition to a circular economy will need a systemic approach involving various stakeholders. It challenges not only (a) businesses to develop circular business models and enabling technologies; but also (b) policy makers and legislators at EU and national level to put in place effective regulation and incentives; (c) the financial sector to work towards improving the availability of financing and to revisit its approach to appraising linear and circular; and (d) public authorities and civil society as a whole to contribute to increasing public awareness and improving consumer education.» (EIB, 2018)

3. New CE Business. The Competitive Circular Economy in Global Corporations

From a general point of view, recycling is a process to convert waste materials into useful new products. The most common examples are paper, glass, and metal recycling. Compound products (i.e. cars or electronics) are harder to recycle, because they are made of materials that do not ease detachment and reutilization, especially for companies operating as single units (Toth, 2019).

The systematic approach to 'Reduce-Reuse-Recycle' defines the basic traditional business model of circular economy focused on waste minimization as a process of reducing the amount and activity of waste materials to a level as low as reasonably achievable (Rosenfeld, 2011). In this sense, circular economy defines «a linear pattern of production and consumption, proposing a circular system in which the

value of products, materials and resources is maintained in the economy as long as possible» (Merli et al., 2017).

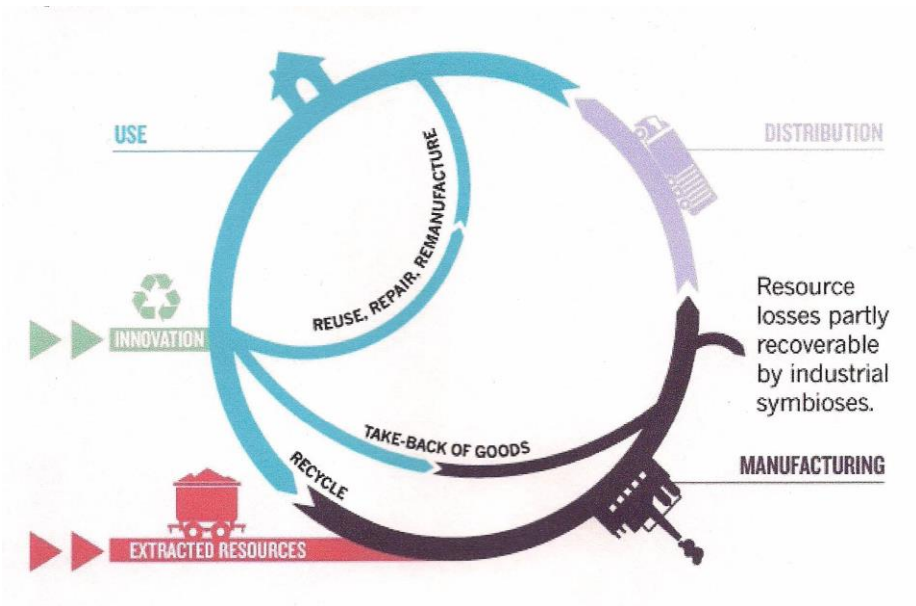
Circular economy, indeed, bases on the establishment of closed production systems, where resources are reused and kept in a loop of production and usage, allowing the generation of more value and for a longer period (Figure 1).

> □ *«In an increasingly expanding global economy within a resource-constrained world, concerns over the exploitation and potential future shortage of the earth's natural resources grow rapidly worldwide. Resource extraction and use is further linked to emissions and waste generation, which contribute to adverse environmental pressures.» (Milios, 2018)*

Shifting the production and consumption pattern from a linear economy to a circular one is unequivocally important to reduce the pressure in the extraction of resources from the environment.

The traditional task of circular economy is focused on existing production systems based on a linear consumption model, where raw materials are extracted, processed into finished products and become waste after they have been consumed, with closed systems that reuse resources and conserve energy (Xue et al., 2010).

Figure 1: *Circular Economy. Closing Loops. Innovation, Extracted Resources, Manufacturing, Distribution, Use*



Source: Stahel (2016).

Few studies face the circular economy as a paradigm that companies can implement from a business model perspective (Linder & Williander, 2015).

Circular economy business models are usually based on the degree of adoption of circularity along two major dimensions (Urbinati et al., 2015):

1. the implementation of the circularity concept in proposing value to customers;
2. the value network, i.e., the ways through which interacting with suppliers and reorganizing the own internal activities.

However, traditional business models of circular economy used by international and national companies are very limited, because «exogenous factors – such as the size, the industry, the geography and the age of the company – do not seem to matter in the adoption process» (Urbinati et al., 2015).

Globalization has radically modified the traditional fundamental principles of industrial output constituted by the static localization of manufacturing facilities, the presence of workers at manufacturing sites, and stocks of raw, semi-finished materials (MacIntosh et al., 2015).

Indeed, the biggest corporations use a new circular economy business model, focused on global competition.

Conversely, in Europe the circular economy is still focused on a potential way for our society to increase prosperity, while reducing dependence on primary materials and energy.

> □ *«By combining efficiency and effectiveness—doing the right things—the European economy would experience win-win-win. Lower costs, less carbon emissions, and more employment. Very good news in a situation where environment and resource concerns too often have been seen mainly as a cost and threat to competitiveness.» (Anders Wijkman, Co-President, Club of Rome, 2015)*

With this romantic vision, the European Commission is expected to propose "circular economy packages", so that many business leaders could embrace the circular economy as a path to increasing growth and profitability. At the same time, a lively debate is going on about the attractiveness of circular economy for different stakeholders and its implications for employment, growth, and the environment.

As we can see from the experience of the largest global corporations (e.g., Mitsubishi Corporation), the world reality is quite different. Nowadays, the biggest global companies see the circular economy simply as a specific tool to compete, in the context of a network vision (McIntyre & Ortiz, 2016).

In fact, in big global corporations, the circular economy is often widely applied within a company's network. From this perspective, some companies of the network are specifically oriented towards recycling, while other companies belonging to the same group use raw materials obtained from recycling, thus gaining an extensive competitive advantage for all the companies of their network (competitive circular economy).

Bibliography

Accenture (2014). *Circular Advantage. Innovative Business Models and Technologies to Create Value in a World without Limits to Growth*.

Barone, E., Ranamagar, N., & Solomon, J. F. (2013). A Habermasian Model of Stakeholder (Non) Engagement and Corporate (Ir)Responsibility Reporting. *Accounting Forum*, 37(3), 163-181.

http://dx.doi.org/10.106/j.accfor.2012.12.001

Bocken, N., de Pauw, I., Bakker, C., & van der Grinten, B. (2016). Product Design and Business Model Strategies for a Circular Economy. *Journal of Industrial and Production Engineering*, 33(5), 308-320.

http://dx.doi.org/10.1080/21681015.2016.1172124

Brondoni, S. M. (2019). 4.0 IR, Oversize Economy and the Extinction of Mammoth Companies. *Symphonya. Emerging Issues in Management (symphonya.unicusano.it*), (2), 8-24.

http://dx.doi.org/10.4468/2019.2.02brondoni

Brondoni, S. M. (2019). Shareowners, Stakeholders & the Global Oversize Economy. The Coca-Cola Company Case. *Symphonya. Emerging Issues in Management (symphonya.unicusano.it)*, (1), 16-27.

http://dx.doi.org/10.4468/2019.1.02brondoni

Brondoni S. M. (2018). Planned Obsolescence, Total Quality, Zero Defects and Global Competition. *Symphonya. Emerging Issues in Management (symphonya.unimib.it)*, (2), 8-20.

http://dx.doi.org/10.4468/2018.2.02brondoni

Brondoni, S. M. (2014). Global Capitalism and Sustainable Growth. From Global Products to Network Globalisation. *Symphonya. Emerging Issues in Management (symphonya.unimib.it)*, (1), 10-31.

http://dx.doi.org/10.4468/2014.1.02brondoni

Brondoni, S. M. (2013). Innovation and Imitation for Global Competitive Strategies. The Corporation Development Models of US, Japan, Korea, and Taiwan. *Symphonya. Emerging Issues in Management (symphonya.unimib.it)*, (1), 12-27.

http://dx.doi.org/10.4468/2013.1.02brondoni

EIB – European Investment Bank (2018). *The EIB Circular Economy Guide. Supporting the Circular Transition.*

Ellen MacArthur Foundation (2019). *Artificial Intelligence and the Circular Economy – AI as a Tool to Accelerate the Transition*.

http://www.ellenmacarthurfoundation.org/publications

Ellen MacArthur Foundation (2012). *Towards a circular economy – Economic and Business Rationale for an Accelerated Transition*. Isle of Wight. UK: Ellen MacArthur Foundation (EMF).

Freeman, R. E. (1994). The Politics of Stakeholder Theory: Some Future Directions. *Business Ethics Quarterly*, 4(4), 409-421.

http://dx.doi.org/10.2307/3857340

Freeman, R. E., & Dmytriyev, S. (2017). Corporate Social Responsibility and Stakeholder Theory: Learning From Each Other. *Symphonya. Emerging Issues in Management (symphonya.unimib.it)*, (2), 7-15.

http://dx.doi.org/10.4468/2017.1.02freeman.dmytriyev

Gennari, F., & Salvioni, D. M. (2019). CSR Committees on Boards: The Impact of the External Country Level Factors. *The Journal of Management and Governance*, 23, 759-785.

http://dx.doi.org/10.1007/s10997-018-9442-8

Greenwood, M. (2007). Stakeholder Engagement: beyond the Myth of Corporate Responsibility. *Journal of Business Ethics*, 74, 315-327.

http://dx.doi.org/10.1007/s10551-007-9509-y

Linder, M., & Williander, M. (2015). Circular Business Model Innovation: Inherent Un-Certainties, Business Strategy and the Environment, 26(2), 182-196.

http://dx.doi.org/10.1002/bse.1906

MacIntosh, R., Andrews, K. P. & Mcleod, J. (2015). *Managing Change*, in MacIntosh, R. & O'Gorman, K. (eds.), *Introducing Management in a Global Context*, pp. 93-110, Goodfellow Publishers:Oxford.

http://dx.doi.org/10.23912/978-1-910158-47-0-2734

Merli, R., Preziosi, M., & Acampora, A. (2017). How do Scholars Approach the Circular Economy? A Systematic Literature Review. *Journal of Cleaner Production*, 178, 703-722.

http://dx.doi.org/10.1016/j.jclepro.2017.12.112

Milios, L. (2018). Advancing to a Circular Economy: Three Essential Ingredients for a Comprehensive Policy Mix, *Sustainability Science*. 13, 861-878.

http://dx.doi.org/10.1007/s11625-017-0502-9

Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts. *Academy Management Review*, (22), 853-886.

http://dx.doi.org/10.2307/259247

OECD (2018). *OECD Due Diligence Guidance for Responsible Business Conduct*. OECD Publishing: Paris.

Rosenfeld, P. E., & Feng, L. G. H. (2011). *Risks of Hazardous Wastes*. Amsterdam: Elsevier.

Salvioni, D. M., & Gennari F. (2019). Stakeholder Perspective of Corporate Governance and CSR Committees. *Symphonya. Emerging Issues in Management (symphonya.unicusano.it)*, (1), 28-39.

http://dx.doi.org/10.4468/2019.1.03salvioni.gennari

Salvioni, D. M., Franzoni, S., Gennari, F., & Cassano, R. (2018). Convergence in Corporate Governance Systems and Sustainability Culture. *International Journal of Business Performance Management*, 19, 7-15.

Salvioni, D. M., & Gennari, F. (2017). CSR, Sustainable Value Creation and Shareholder Relations. *Symphonya. Emerging Issues in Management (symphonya.unimib.it)*, (1), 36-49.

http://dx.doi.org/10.4468/2017.1.04salvioni.gennari

Salvioni, D. M., Astori, R., & Cassano R. (2014). Corporate Sustainability and Ethical Codes Effectiveness. *Journal of Modern Accounting and Auditing*, September 2014, 10(9), 969-982.

Salvioni, D. M., & Bosetti, L. (2014). Stakeholder Engagement and Integrating Reporting: Evidence from the Adoption of the IIRC Framework. *Journal of Strategic and International Studies*, 9(3), 78-89.

Stahel, W. R. (2016). Circular Economy. *Nature*, 531, 435-438.

Toth, G. (2019). Circular Economy and its Comparison with 14 Other Business Sustainability Movements. *Resources*, 8(4), 159

http://dx.doi.org/10.3390/resources8040159

UNIDO – United Nations Industrial Development Organization (2019). *Industrial Resource Efficiency and Circular Economy*.

Urbinati, A., Chiaroni, D., & Chiesa, V. (2017). Towards a New Taxonomy of Circular Economy Business Models. *Journal of Cleaner Production*, 168, 487-498.

http://dx.doi.org/10.1016/j.jclepro.2017.09.047

Xue, B., Chen, X. P., Geng, Y., Guo, X. J., Lu, C. P., Zhang, Z. L., Lu, C. Y. (2010). Survey of Officials' Awareness on Circular Economy Development in China: Based on Municipal and County Level. *Resources, Conservation and Recycling*, 54(12), 1296-1302.

http://dx.doi.org/10.1016/j.resconrec.2010.05.010