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Original Article

Circular Economy and Emerging Entrepreneurial Opportunities: A Literature Review

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Abstract: The Circular Economy (CE) is a revolutionary means of dealing with the sustainability issues of the world through the encouragement of resource efficiency, minimization of waste, and continuous use of materials. This paper explores the opportunities for entrepreneurship under the CE system through the lens of innovative business models, green products, and circular supply chains. It recognizes important drivers, such as growing environmental awareness, regulatory benefits, and advances in technology that promote the acceptance of CE philosophies. Barriers such as financial limitations, low public sensitization, and poor infrastructure hampering the evolution of CE methodologies are also addressed by the review. Through research synthesis, the study emphasizes entrepreneurship's vital position in overcoming hindrances and bringing about innovation for CE industries.

Keywords: Circular Economy (CE), Entrepreneurship, Sustainable Development, Resource Efficiency, Waste Reduction.

I. INTRODUCTION

Growing environmental consciousness, tougher environmental laws, and the increasing focus on social responsibility have led business manufacturing firms to look for innovative ways of running their business. There is broad consensus that the shift from the existing industrial "linear" paradigm to a Circular Economy (CE) is a must to achieve sustainable production and development, building a more eco-friendly and socially just society. Gregson et al. (2015) highlight that CE has come to be a significant alternative to the conventional "make-use-dispose" framework, calling for a circular movement of material and energy. Through the use of renewable energy sources and new manufacturing processes, CE holds the promise of ending environmental waste in production and recycling used materials back into the production stream, moving toward sustainability (Ciani, Gambardella, and Pociovalisteanu, 2016; Yuan, Bi, & Moriguichi, 2006).

The Circular Economy (CE) focuses on redesigning traditional production and consumption models. It changes from the conventional linear use-and-disposal model to circular production systems and new business models that seek to eliminate waste and reduce material and energy loss (Julianelli, Caiado, Scavarda & Cruz, 2020). The change from the linear production model to the progressive integration of circular principles relies on embracing cutting-edge technologies. These technologies support the smart decentralization of manufacturing, encourage reusable materials, and lengthen the lifespan of products (Kravchenko, Pigosso & McAloone, 2020).

Initiatives to advance and raise awareness of the Circular Economy (CE) are growing alongside the development of dynamic new business models aimed at providing rapid responses to consumers (Henry, Bauwens, Hekkert & Kirchherr, 2020). Start-ups have been created in the last few years that lead the way to new ways of consumption, creating completely circular market segments (Singh & Singh, 2019; Henry et al., 2020). For example, sharing platforms pool resources and offer substitutes that make it easier and promote the taking up of the sharing economy, which is strongly in line with CE principles (Konietzko, Baldassarre, Brown, Bocken & Hultink, 2020).

The circular business model demands process and business partnership restructuring to create a system that supports and aligns with sustainability. Closing the production loops combines economic, environmental, and social aspects, encouraging mindful consumption and effective material and energy utilization. It is important to emphasize not only the conscious utilization of resources and energy but also the systemic integration of sustainable principles, such as product design with the post-use life cycle in mind (Kristensen & Mosgaard, 2020). This requires careful planning and concentration on long-term results (Konietzko et al., 2020). Therefore, the circular business model focuses on restructuring processes and collaborations to build a structure compatible with sustainability.

The Circular Economy (CE) has been a revolutionary model for sustainable development, presenting a different option from the conventional linear economy of "take, make, dispose." In the CE model, resources are made to last as long as possible,



and waste is reduced through activities like recycling, remanufacturing, and resource recovery (Kazancoglu, Sagnak, Kumar Mangla & Kazancoglu, 2021). This transition is not only profoundly environmentally positive, but it also creates new opportunities for entrepreneurship. Entrepreneurs can take advantage of the increased demand for sustainable solutions by designing new business models and services to foster the optimized use of resources, waste reduction, and long product lifecycles (Benton et al., 2015). This literature review seeks to investigate the entrepreneurial opportunities available through the Circular Economy (CE) paradigm.

II. LITERATURE REVIEW

A) Concept of Circular Economy

The Circular Economy (CE) is a regenerative model that needs systemic economic transformation, which integrates the business sense from manufacturing to consumption (Moraga, Huysveld, Mathieux, Blengini, Alaerts, Van Acker, de Meester & Dewulf, 2019). The definition and quantification of the circular economy are complex procedures that present difficulties in designing a system of indicators that links the emergence of the circular economy with social advancement. Therefore, in accordance with Mitrović and Veselinov (2018), measuring progress and stimulating the development and implementation of innovative and corrective policies and strategies for the establishment of the circular economy necessitates the application of a consistent and synthetic approach.

The concept of Circular Economy (CE) differs from the linear economy, as it separates economic growth from resource extraction and environmental degradation (Jayakumar et al., 2020). Consequently, organisations that choose to redesign their supply chain for CE can potentially gain environmental, social, and economic advantages (Khan & Haleem, 2021). The CE is gaining momentum as a long-term development plan that demands a fundamental reform of the human activities system. It encompasses both the supply chain operations and consumption. This innovative CE strategy is founded on the 10R principles, which include refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle, and recover (Maqbool, Khan, Haleem & Khan, 2020; Bag, Gupta & Kumar, 2021).

The extraction of raw materials for goods is the foundation of the existing industrial system, which culminates in waste (Khan, Haleem & Khan, 2022). This type of industrial system is referred to as a linear system, and it faces a number of difficulties, including a shortage of raw materials, increased waste production, and serious environmental issues (Chhimwal, Agrawal & Kumar, 2021). An alternative industrial system known as a CE can resolve these problems with the linear industrial system. It disapproves of the current "cradle to grave" notion and centres around the idea of "cradle to cradle." The place where garbage is disposed of is called the grave, and the area from which natural resources are collected is called the cradle. By adopting the "cradle to cradle" philosophy, the CE may be able to lessen the social and environmental effects of the supply chain (Maqbool et al., 2020).

In order to attain the best possible resource utilisation, the product or component is recovered, regenerated, and reused when its life is coming to an end (Govindan & Hasanagic, 2018). Circular practices, which minimize waste and carbon emissions while optimising resource utilisation, are the cornerstone of the CE. Circular practices strive to incorporate environmental concerns into enterprises by optimising raw materials and energy utilisation via applying the concepts of reuse, reduction, and recycling, hence minimising the negative influence of industrial operations (Khan & Haleem, 2021). CE is a system that links to resources, the environment, and the economy to optimise the complete material cycle from originating materials to finalised materials, components, products, obsolete products, and eventually to disposal (Han, Heshmati & Rashidghalam, 2020).



Figure 1. Conceptualization of a circular economy

Source: (Han, Heshmati & Rashidghalam, 2020).

B) Circular Economy and Entrepreneurial Opportunities

The body of literature exploring the intersection of the Circular Economy (CE) and entrepreneurship remains relatively sparse (Heshmati, 2017). Scholars use the term "ecopreneurship" to describe entrepreneurs who steer their ventures with a focus on environmentally sustainable activities (Stål & Bonnedahl, 2016). While businesses operating under a linear production model prioritize profit as their primary objective, circular business models incorporate environmental goals as fundamental elements shaping and directing their strategies. Central to this approach is the preservation of resource value within supply chains (Amoako, Bonsu, Caesar & Osei-Tete, 2021).

The Circular Economy (CE) presents a range of social and political opportunities, primarily by fostering stronger connections between society and industry. By closing the loop, all stakeholders within supply chains, including the public and companies, are encouraged to engage in more extensive collaboration (Ogunmakinde, 2019). In the CE model, a product's value chain no longer ends with the consumer; instead, products are recovered at the end of their lifecycle. This shift promotes better alignment between businesses and customers (Shevchenko, Saidani, Ranjbari, Kronenberg, Danko & Laitala, 2023). As a result, companies can gain deeper insights into public needs and expectations, enabling them to design and manufacture products that resonate with their audiences. This approach not only enhances customer satisfaction but also helps attract a broader customer base.

The adoption of the Circular Economy (CE) holds significant potential to generate numerous employment opportunities within local communities (Jesus & Jugend, 2023). The establishment of recovery firms not only attracts investment but also creates jobs for local residents. Additionally, CE contributes to improving public health and raising environmental awareness (Kumar, Sezersan, Garza-Reyes, Gonzalez & Al-Shboul, 2019). As people become more mindful of the dangers of hazardous materials, they increasingly opt for safer, environmentally friendly products. Furthermore, CE encourages the adoption of rental models across various sectors (Howard, Yan, Mustafee, Charnley, Böhm & Pascucci, 2022), enabling companies to gather valuable customer insights. This, in turn, allows them to deliver customized and personalized products tailored to consumer needs at lower costs. By enhancing social value, CE ultimately contributes to an improved quality of life.

The Circular Economy (CE) also helps companies reduce costs and increase profitability. It enables cost savings through sustainable supply chain management, efficient end-of-life strategies, lower input prices, and minimizing environmental penalties and waste generation (Silvério, Ferreira, Fernandes & Dabić, 2023). Through the closed-loop model of supply chains, companies can sell their waste products rather than dispose of them, creating additional revenue streams. Waste can be repurposed as raw materials for other businesses, reducing material costs and mitigating price volatility. Additionally, CE creates new recycling and re-manufacturing markets that can increase profits and give companies a competitive advantage (Silvério et al., 2023). Aside from companies, the public and local governments can also benefit from reducing expenses. Local governments can earn extra revenue through collecting and selling waste to recycling firms. For the public, CE lowers the charges for waste disposal, resulting in cost savings.

The circular economy model has extensive potential advantages in economic, environmental, and social aspects. These advantages encompass:

a. Economic Advantages

Through the use of innovative, service-oriented economic approaches and the speeded-up development of technology, the circular economy creates new revenue opportunities for businesses (Vence & Pereira, 2019). Since it needs less virgin material and does not use more labour, material, and energy, it can reduce expenses as well. Additionally, the application of circular economy concepts can result in tremendous cost savings, thereby increasing industry competitiveness.

b. Environmental Benefits

By eliminating waste and pollution and extending the life of products and materials, a circular economy can help save resources. It can also assist in reducing greenhouse gas emissions, as more efficient and sustainable products can help reduce energy and resource usage. More sustainable use of resources will result from recycling and prolonging product lifetimes, which will also assist in minimising trash and turning it into a valuable resource. By encouraging the reuse of existing things, CE practices can assist in minimizing trash output and, consequently, environmental degradation (Nadeem Garza-Reyes & Glanville, 2018). CE eliminates the use of toxic chemicals that prevent effluent reuse and a return to the ecosystem, and it replaces the idea of a product or service's end of life with renewable and restored energy.

c. Social Benefits

According to Burton, Smith, and Darker (2020), the circular economy encourages sharing, repairing, and teamwork, which results in neighborhood-based projects like food donation programmes, repair cafes, and exchange events. These programmes not only help reduce trash but also empower and include the community, encouraging a sense of well-being and shared responsibility. The circular economy encourages regional production and consumption, which strengthens regional

economies and lessens reliance on imported resources (Chisoro, Jaja, & Assan, 2023). As a result, the supply chain is shortened, and businesses are encouraged to interact more with the community, which increases affordability and strengthens the local economy.

d. Barriers to Circular Economy

Despite the numerous opportunities presented by the Circular Economy (CE), public awareness of its principles remains relatively low (Winans, Kendall & Deng, 2017). While governments and businesses worldwide have begun to adopt CE practices in recent years, there is still a significant lack of understanding about the term "CE" and its underlying concepts (Benton, Hazell, & Hill, 2015). Therefore, it is essential to implement comprehensive public education initiatives through various channels, such as advertisements on TV, in magazines, newspapers, and billboards, as well as government policies and the development of new business models. These initiatives would aid in projecting the potential of CE and foster the involvement of the public since participation from society is essential in realizing the success of CE (Ogunmakinde, 2019). Nonetheless, the capacity of people and institutions to enable such education continues to be narrow, majorly because there are not enough professionals in CE. This shortfall disallows institutions and governments to make meaningful advocacy on CE to the general public (Benton, Hazell, & Hill, 2015).

Evidence indicates that consumers value product appearance above everything else when it comes to buying products without necessarily considering how sustainable or environmentally friendly they are. They opt for products that look better, regardless of their recyclability (Pomponi & Moncaster, 2017). This choice minimizes demand for remanufactured products and discourages customer acceptance, complicating the sustenance of Circular Economy (CE) approaches. In addition, for circular flow through the CE model, there must be a constant stream of materials for recycling in order to prepare old products and parts for reuse in remanufacturing activity. This is achieved by companies entering contracts with buyers to promote the return of products and restrict their usage so that there is a constant supply of materials for recycling.

There are a lot of economic challenges to adopting the Circular Economy (CE) in the manufacturing industry. CE is a costly endeavor that requires substantial initial investment (Arsawan, Atmaja, Hariyanti, Kariati, Yudistira & Darmayanti, 2022), but with economic returns being achieved after a long time. CE investment is feared by managers due to the expiry of their tenures, which prompts them to focus on other business activities (Arsawan et al., 2022). Furthermore, the absence of mechanisms for providing financial support, including tax relief and preferential funding from governments and banks, dissuades businesses from undertaking CE, even when they are ready to (Arsawan et al., 2022).

The associated costs render CE financially viable only for large enterprises. Government assistance is required to shift from the existing linear economy model to a closed-loop system, and it is up to the government to establish a favorable environment for CE adoption. In addition, CE is dependent on collaborative business models that provide a constant stream of materials and satisfy customer requirements. Nonetheless, the unavailability of credible information (Pomponi & Moncaster, 2017; Winans et al., 2017) and the financial burden of setting up eco-industrial chains (Arsawan et al., 2022) do not allow businesses to have an effective feedback system. Consequently, businesses end up taking inappropriate actions that negatively affect their profitability. Additionally, the inherent high expenses and uncertainties in CE can undermine the financial viability of companies. Such doubts discourage firms from pursuing remanufacturing due to doubts over its future profitability and sustainability.

The Circular Economy (CE) also encounters various environmental challenges. There are insufficient environmental management facilities and programs available in government departments and academic organizations, and even the available ones prove to be ineffective (Govindan & Hasanagic, 2018). The incentives offered to encourage more environmentally friendly practices and to save water, energy, and material inputs are usually inadequate (Ogunmakinde, O. E. (2019). Most firms keep relying on old technologies and equipment since they do not have the requisite capital to update them with better, more energy-saving technologies. Consequently, energy use and levels of pollution are much greater in these old machines that deal with environmental waste products (Mohajan, 2020).

In addition, landfill and incineration operations are plagued by poor technologies (Gregson et al., 2015), which result in extensive environmental degradation that is irreversible. Decomposer and scavenger firms are also unable to increase their activities because of stringent policies (Kumar, Sezersan, Garza-Reyes, Gonzalez & Al-Shboul, 2019). Most governments do not offer adequate subsidies or tax cuts to stimulate waste recovery, thereby curtailing the level of recovered materials. This deficit compels remanufacturing firms to depend on virgin materials, thus further thwarting the aims of the Circular Economy.

III. CONCLUSION

The Circular Economy (CE) presents a hopeful platform to attain sustainable development by remolding conventional economic patterns with an emphasis on resource efficiency, waste minimization, and the longevity of products. This paper brings out the considerable entrepreneurial opportunities offered by CE, such as innovation in business models, green product designs,

and circular supply chains. Entrepreneurs are key to closing gaps between sustainability targets and economic interests, turning sustainability challenges into opportunities for development and innovation. Nonetheless, the shift towards CE is never easy, as it is accompanied by financial limitations, a lack of public awareness, and low infrastructure levels. Overcoming these challenges necessitates concerted action from governments, companies, and society to establish enabling environments for circular actions. By tapping the power of new technologies, stimulating public education, and building facilitative policies, entrepreneurs can tap the maximum potential of CE.

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