

ANALYSIS OF THE BENEFITS AND CHALLENGES OF CIRCULAR ECONOMY MODEL ADOPTION FOR BUSINESSES SUSTAINABILITY IN NIGERIA

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Abstract

Circular Economy model is the adoption of marketing process which eliminates any form of waste in order to optimize resource performance. It is systemic, an effort to minimize resource waste and maximize performance. The objective is to have a perspective shift in assuring a fossil fuel alternative energy and to redefine growth for wide benefits of the society. The study highlights the benefits and limitations of circular economy model in emerging Nigerian economy and the way forward to ameliorate the model. It is found to have become a source of competitive advantage for firm, data analytic and artificial intelligence in both developed and developing countries. Hence, the paper recommends a robust marketing management cum coordinating frame work conducted with local firms of Small and Medium Enterprises along with the coordination of private-public -partnership without losing sight of leveraging on technology platform as enablers that drive the digital economy.

Keywords: Circular economy model, Marketing process, Resource performance Business sustainability.

Introduction

The end use of final product is often regarded as a waste but in today's economy, it is the use of unfettered input resources and maximum output in countenance to throwaway output in which resources are tied and remain tied as much as possible as part of the economy and this is dependent upon how the

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input and output are marketed in the process. This is further translated as the use of waste product in furtherance of wealth creation. Boulding (1996) muted the idea of open economy which today is known as circular economy where resource input can be fed back into production cycle whether biological or technical. Hence, it is a retentive term associated with unlimited input resources. The model is not only back-to-back, it is versatile which also hinges on value of products including product safety, human and environmental health safety in an orthodox economy, raw materials are transformed into products after which the waste are disposed of. But in the bio gradable waste materials, the waste is reused, for further generation of wealth from waste. Inversely they are used as chemical substances to generate natural systems and produce renewable energy. It is a back-to-back and a back-ward integration system.

The circular economy model has its core values, the principal being to design waste for further production of wealth. In other word there is no such thing as waste at the end of one production cycle is the beginning of another one in the long run. The material resources are designed in such a way that products have long duration in service in such a way that they last longer in the production loop and optimize production cycle and renew them without giving room to any waste whatsoever. This circular model of product development is a focus towards efficient production of goods and services while taking into cognizance the environmental and social costs for sustainable economy (L'économie circulaire, 2020). The model further implies marketing economic transition from fossil fuel to renewable energy resources as it is the incubation of economic, natural and social capital in its process (ICLEI Africa, 2021). It is a guided three- basic principles of designing out waste and pollution, keeping up products and materials in continual use and generating natural resource systems. This in a way optimizes sustainable procurement, eco-design, industrial and territorial ecology. It also enhances the economy of functionality, responsible consumption, extension of product life span, improvement of waste prevention, management and recycling (L'économie circulaire, 2020).

The paper is of the opinion to keep products, equipment and infrastructure in use for longer time, in an effort to improve the value and productivity of these resources. Hence, the concept of this paper is posited around one basic principle of developing a "closed loop" approach to production processes. This is in a global context in general and in Nigerian context in particular, paper defines the circular economy concept and identifies the benefits with its adoption by firms as well as the limitations thereof. The essence is to prompt companies (especially in Nigeria) on the imperatives for a strategic transition towards a circular economy model as a source of sustainable competitive advantage.

Literature Review

Conceptual Framework

Linear industrial model: Circular economy is beyond the current linear dispose extractive model, and it adopts a marketing concept that is circular and focused on positive society-wide benefits. The Foundation adopts the concept approach beyond traditional approach of linear economy which aims at accelerated growth at extractive industrial model (Ellen McArthur Foundation, 2013).

Restorative/regenerative system: This is a marketing management system that is restorative or regenerative by intention and design, shifts towards the use of renewable energy, eliminates the use of toxic chemicals which impairs the return of resources to the biosphere, and aims for the elimination of waste through the superior design of materials, products, systems, and business models (World Economic Forum, 2017)

Remanufacturing and recycling method: As an economic model circular economy encompasses remanufacturing and recycling methods, to create a closed-loop system that minimizes the use of resource inputs and the creation of waste, pollution and carbon emissions (Geissdoerfer, Savaget, Bocken, & Hultin, 2017)

A component or recovered resource: As a marketing management concept, Circular economy abhors waste where waste materials and energy items become inputs for other processes, either as a component or recovered resource for another industrial process or as regenerative resources for nature (Invenizzi, Locatelli, Valenturf, Love, Purnell & Brookes, 2020). The conglomerate of concept issues culminates to back-to-back, and a back-ward integration system.

All the approaches agree on the importance of designing, producing and consuming in a sustainable way in keeping products and resources in longer use, and ensuring regenerating natural systems. It is guided by three-basic principles of designing out waste and pollution, keeping up products and materials in continual use and generating natural resource systems. Above all it is eco-system friendly.

Theoretical Foundation

The Circular Economy and its impact on job creation, economic competitiveness, resource savings and waste prevention came to limelight when Stahel and Redalny (1976) came to limelight when they revealed their vision of economy in loops. This was made available in their book titled “Potential for substituting Manpower for Energy” in 2012. The main purpose of the innovation is to operationalize the extension of life cycle of product, to make goods last longer and to use the existing end product for recycling waste to wealth. This goal of Stahel Institute is to provide service performance. Further the model provides for localization of economic activities (Cliff &

Allwood, 2011) which triggered the Platform for Acceleration of the Circular Economy (PACE) that followed the legacy of circular economy innovations. (WEF, 2019). Thus, this intertwined into creating developing model of blended finance projects, developing policy framework to advance circular economy and promoting public-private partnership (PPP) all for specific objectives.

The concept of circular economy is cradle-to-cradle laws, loop and performance, regenerative design ecosystem, regenerative design, and industrial green economy. (Getissdoerfer, Savaget, Bocken & Hultink, 2017). Concept based recycling resource input are gaining importance in the face of input resource depletion, waste, and emission leakages occasioned by environmental pollution. The sustainability of s social dimension does not appear to be sufficiently addressed, hence some cases may require different strategies, such as purchasing new, more-energy-efficient equipment (Korhonen, Nuur, Feldmann & Birkie, 2018) while in Mac-Arthur Foundation, (2012) the study of non-feed-back production systems is where production happens only on biological cycles. In the process, these cycles regenerate living systems which provide renewable resources for circular economy.

The benefits of adopting the circular economy model have been highlighted by Director General, National Environmental Standards and Regulations Enforcement Agency. Accordingly, the benefits according to Punch Online Report (2023), include reduction in greenhouse gas emissions; economic growth and job creation; resource efficiency; environmental protection, and reduced dependency on imports. The Director General called for the adoption of PPP model, so as to provide lots of investments and job opportunities for the unemployed youths in Online Report, 2023).

Empirical Review

The “Economics of the Faith” by Boulding in 1996 was first referred to as “circular economy” (Allwood,2024). This assertion was subsequently improved upon by a British descent (Pearce & Turner, 1989), He posited that traditional marketing with its open-ended phenomenon has no provision for recycling the waste of the previous product to wealth (Su, Heshmati, Geng & Yu, 2012). Subsequently, Jackson pioneered the move from his study to create scientific approach to industrial production. This study obviates the circular linear economy into an agnda for change to a more circular economy (Jackson, 1996).

McKinsey and Company developed a report of their study on “*Circular Economy: Economic and Business Rationale for an Accelerated Transition*” in 2013. In that report, they considered the economic and business opportunities that could accrue from the marketing management transition to a restorative, circular economy model. The report detailed the potential for significant benefits and argued that a subset of waste management and wealth creation should be set up to realize net materials cost savings annually.

Achieving this stimulates production in line with circular economic activities in the areas of product development, remanufacturing and refurbishment. Further the report did not fail to identify and recommend the critical areas to focus on in the transition to a circular economy, such as skills in circular design and production, new business models, skills in building reverse cycles, and cross-cycle/cross-sector collaborations (McKinsey Report, 2013).

Further, to improve the productivity of circular economy model, backward integration or modulization has been posited (Mignacca, Locatelli & Vallenurf, 2020) in order to enhance the sustainability of energy infrastructure. They are of the view that implementation of outsourcing or renting models in traditional ownership/household areas such as electronics, clothing, furniture, transportation and biogas should be encouraged. Through sourcing-out the same products to several clients, producer companies can increase revenues per unit of rented item, thus decreasing the need to produce more to increase revenues (Mignacca, et al, 2020)

Methodology

The methodology consists of circular economy models; and, marketing management models with the attributes of closing, narrowing, slowing, intensifying and dematerializing loops in which forty-four works of researchers were reviewed.

Results and Analysis

The results of circular economy are operational as well as strategic (CICERONE, 2020), and they bring together a large potential of value chain creation in the community of business, environmental and societal climate. The results of circular economy are as itemized but not limited to operations and strategies (CICERONE, 2020):

- i. **Greenhouse gas emissions:** Greenhouse gas emission aims at reducing excessive exploitation of natural resources to a positive effect of planet ecosystem. The circular economy has the potential of reducing greenhouse gas emission and the use of the input optimizes agricultural production and at the same time decreases the negative externalities of linear model. The circular economy of greenhouse gases has the following advantages – it uses renewable energy that is less polluting in the long run; reuses and dematerializes the waste for further wealth creation; residues are valuable, absorbed and reused in the process, and they are preferred choices, energy-efficient, non-toxic materials for recycling process.
- ii. **Healthy resilient soil structure:** The system of circular economy on farming system relies on important nutrients which are returned to the soil through anaerobic processes that reduces the exploitation of land and natural ecosystems. In this case, the “waste” is returned from “lab to land”. In addition, fewer residues are dealt with, the soil gets healthier and more

resilient, with a greater assurance of balance between agriculture and ecosystem that surround it. Further a circular economy is very useful for both the soil and the economy just as it prevents loss of biodiversity and loss of unique natural environment.

- iii. **Negative externalities:** The results of circular economy also show negative externalities such as land use, soil, water, and air pollution to be better managed, as well as the emission of toxic substances and climate change.
- iv. **Potential for economic growth:** The increase in revenues from new circular economic activities, together with a cheaper production process gets products and materials to be more functional and easily recycled and reused. The circular economy has the power to increase a country's gross domestic product (GDP) through the revenues of new circular activities, along with a cheaper production process that gets products and materials to be more functional and easily recycled and reused. Substantially, a circular economy has the potential to decouple economic growth from resource consumption to production cycle
- v. **Huge resources savings:** Comparing circular economy and the linear economy, with raw material that is common in linear approach, the results show a model that has the potential to lead to a bigger amount of material savings. On the environmental side, it also avoids bigger pollution that extracting new materials ordinarily represent.
- vi. **Provides employment:** The development of a circular economy model, and the new regulations and organizations of the labor markets, bring greater local employment in both skilled and semi-skilled jobs (WEF, 2018). The study reports that these new jobs will be created through increases in: recycling and repairing practices, where one could add new designers and mechanical engineers to make lasting and easily disassembled products and materials at the transformation/production stages; an increase in new businesses (and niches) due to innovation processes and new business models, and increase in consumption and spending by lowering prices.
- vii. **New business and profit opportunities:** Circular economy results to lower income costs that create new profit streams. Businesses that move from linear economy to circular economy direction can achieve this profit outfit. Conversely, profit opportunities come from newly emerging markets, cutting off costs with waste and energy reduction, and added assurance of continuity supply.

- viii. Stability of supplies:** The major objective of circular economy is cutting off costs with waste and energy reduction and revolutionizing the ecosystem to green and healthy-friendly environment. This results to more recycled inputs as raw materials, necessitating the companies less dependent on the volatility of price of raw materials. Hence, the end result will turn businesses to be more resilient and ever be prepared for any sudden change in their supply and value chain ladder.
- ix. Demand for new services:** As reported, a circular economy model has the potential to create demand for new services and new job opportunities such as (Ellen MacArthur Foundation, 2013): collection and reverse logistics companies that support end of life products being reintroduced into the system; product marketers and sales platforms that facilitate longer lives or higher utilization of products, and parts and component remanufacturing and product refurbishment offering specialized knowledge

In our clime, the industries leveraging to circular economy are textile, construction, automotive, logistics, agriculture (sustainable agriculture), furniture, and oil and gas industries. This technological innovation approach embedded in marketing management is aimed at minimizing the resource inputs into the waste and emission leakage out of the organizational system and at the same time increasing output (Geissdoerfer, 2018).

This technological innovation imbibes the benefits of recycling measures, efficiency improvements, use phase extensions, and a more intense use phase in order of closing, narrowing, slowing and intensifying respectively in the production line (Geissdoerfer, 2018). These tech strategies are deliberate design of material substitution and recovery process and they are related to supply chains (Batista, Gong, Pereira, Jia, Bittar, 2019). Weetman (2016) notes that circular economy is in pursuit of achieving economic sustainability through material substitution and recovery process,

The marketing management models have different emphasizes and objectives at different stages of the models which include (Weetman, 2016): extending the life of materials and products over multiple use cycles; using a 'waste-to-food' approach to help recover materials; ensuring those biological materials returned to earth are eco-friendly, not toxic; retaining the inherent energy, water and other process inputs in the product and the material for as long as possible; strive towards using 'systems-thinking approaches' in designing solutions; regenerating or at least conserving nature and living system, and finally pushing for policies, taxes and market mechanisms that encourage product stewardship by adopting 'polluter pays' regulations.

These emphasizes and objectives allow for the assessment of different digital circular economy business strategies. They associate at maturity levels and provide guidance on how to leverage on data analytics in order to maximize the possibilities by optimizing functionality and resource usage (CICERONE, 2020).

Limitations of Circular Economy

In his analogy of circular economy, Corvellec (2019) critiqued the model as a waste of a living matter of contingent, multiple, and transient value that enables interspecies communication both within as well as across organizations. He posited that waste is unavoidable, and it cannot be completely eliminated or walked out of any system as claimed by proponents of circular economy.

Yet in the same vein Corvellec and Ståhel (2019) are equally critical of 'apparel' manufacturing in Sweden to take-back and avoid severe waste problems. In particular, the apparel retailers generally believe that the circular economy arouses the feeling of zero waste, but at the same time it has not been sufficiently proven in concrete terms to create any significant policies (Ludeke-Freund, Gold & Bocken, 2019). In their assessment Funk and Hirschman, (2017); Corvellec and Stahel, (2019) maintained that the business-centered assessment of circular economy can only lead to an engagement in "market action as a leverage to push policymakers to create or repeal particular rules of engagement" (Funk & Hirschman, 2017; Corvellec & Stahel, 2019).

In another study by Zink and Geyer (2017), they questioned the circular economy' engineering-centric assumptions, by the proponents of the circular economy on how engineering system tend to overlook the economic part of the circular economy while recent research questioned the core of the circular economy, especially as to whether closing materials and product loops do, actually prevent primary production" (Zink & Geyer, 2017).

There are other critiques of the circular economy, Lazarevic and Valve, (2017); Valenzuela and Bohm, (2017), and Allwood, (2014) who generally or specifically at one time or the other pointed out the limits of circular economy, material circularity, and questioned the desirability of the circular economy in an environment of growing demand. They maintained that the problem of circular economy overlooks how displacement is governed mainly by market forces, insisting that the invisible hand of market forces will conspire to create full displacement of virgin material of the same kind (Zink & Geyer, 2017).

Korhonen, Nuur, Feldmann, and Birkie (2018) vehemently criticized "the basic assumptions concerning the values, societal structures, cultures, underlying world-views and the potential of circular economy paradigm remain largely unexplored". They believe a real implementation of the circular economy concept, is to measure the amount of energy increase in the system by generating sufficient waste. This would ultimately amount to having some parts of the economy still following a linear scheme, as enormous amounts of energy would be required from which a significant part would be dispersed or wasted (Korhonen, Nuur, Feldmann & Birkie, 2018).

In its comment, EASAC (2017), came to the conclusion that "recovery and recycling of materials that have been dispersed through pollution, waste and end-of-life product disposal require energy and resources, which would increase in a non-linear manner as the percentage of recycled material rises, thereby causing dispersion", there from. Subsequently, recovery cannot be absolute. In other words, the level of recycling that is appropriate for a specific circular economy production system may differ between materials (EASAC, 2017).

Conclusion

The relationship between marketing and sustainable development is quite strong and significant on account of marketing key activities such as production, packaging, advertising which impact heavily on the “unsustainability” of our current economies and societies. Thus, marketing has a critical role to play in the process of pushing the agenda towards a more sustainable society. The circular economy concept is not only aimed at leading the pathway to changing the traditional model of doing business as it were. Rather, it suggests a paradigm shift from the old profit maximization, to an alternative way of thinking on how to attain a sustained competitive advantage (SCA). At the same time, it addresses the nagging environmental and socio-economic issues of the 21st century. Indeed, stepping away from linear forms of production most often implies the development of new competencies along the value chain, which ultimately leads to superior performance by firms that cut costs, improve efficiency, comply with government regulations and meet the expectations of green consumers.

The multiple instances of companies successfully embracing circular solutions across industries and notwithstanding the wealth of opportunities that exist when a firm is sure about what benefits circular activities can bring to bear in its unique profile and goals, the paper concludes that circular economy decision-making remains a highly complex exercise that should be applied in content and context with no one-size-fits-all solutions. This complexity of adopting the circular economy process is still being felt by most companies (i.e. SMEs), that perceive circular economy business strategies as something that is not appropriate for them or may be too costly and risky to implement. Much as the initial focus of industry/policy thrust was mainly on the development of recycling, remanufacturing, reuse technology, it soon became clear that the technological capacity of firms (both in terms of infrastructure and skill sets), especially in developing economies like Nigeria and Sub-Saharan Africa, is increasingly not catching up with implementation.

Recommendations

Strategic management and policies therefore, should come to the rescue by helping companies not only to carefully evaluate circular economy-inspired ideas, but to also determine when and where the idea of circularity can most appropriately be developed, adopted and implemented. The whole idea of circular economy is to create a policy/management coordinating framework where the economy and nature can effectively play together for the benefit of society.

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