

The Role of Circular Startups in Promoting the Circular Economy

Le Rôle des Startups Circulaires dans la Promotion de L'économie Circulaire

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Abstract:

Our research is based on a series of academic articles that discuss the contribution of circular startups toward the transition to a circular economy. We found that the theoretical vision of the circular economy is simple, however its practical implementation requires significant political support and funding

Keywords: Circular economy, Circular startups, Entrepreneurship.

Jel Classification Codes: G10

Résumé :

Notre recherche s'appuie sur une série d'articles scientifiques qui ont exploré la contribution des startups circulaires à la transition vers une économie circulaire. Nous constatons que même si la vision théorique de l'économie circulaire est simple, sa mise en œuvre pratique nécessite un soutien politique et un financement importants.

Mots clés: Économie circulaire, startups circulaires, entrepreneuriat

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1. INTRODUCTION

In addition to uncertain environmental scenarios, the world's industrial production systems pose a variety of environmental problems, including pollution, energy production, water consumption, and the use of hazardous chemicals. These problems contribute to climate disasters and natural instability, which harms actual and future generations' rights. The traditional approach to solving these problems is to provide a pipe termination solution, which often does not address the main cause of the problem. There is a consensus worldwide for the obligation of encouraging for sustainable economic, social and environmental solutions. There is also a growing number of voices demanding a change in production processes and consumption modes (Alonso-Almeida, Rodriguez-Anton, & Perramon, 2019).

Today, it is clear that maintaining a linear economic system leads to increased economic, social and environmental risks. In response to these issues governments and civil society have been pushing the transition toward a circular economy. (Othman, 2022). Researchers also encourage the transition by promoting the circular economy.

Circular startups play a key role to drive toward transition to a circular economy and achieving sustainability goals.

circular start-ups are a promising areas of research because they have a better opportunity to push the sustainability agenda forward and they have more flexibility compared to larger firms which have more organizational inertia. Moreover, start-ups have higher expectations from themselves in terms of delivering social, environmental, and economic impacts to make this transition possible (Tuladhar, 2021).

Circular startups in developing countries like Algeria face innovation challenges due to geopolitical, financial, and political barriers. In these regions, small and medium-sized enterprises have a big role in economic development. However, the level of innovation in SMEs is very limited because their innovation capacity is limited, and finally we can say according to Bahn-Walkowiak (2019): « CE is a philosophy which is easy to understand, but it is very complex to put in reality because of

the rapidity to adapt to changing market conditions and their tendency to adopt radical CBM » (Klofsten, Kanda, & Lamine, 2024) .

The research' problem: The environmental disadvantages caused by increased pollution are causing significant environmental damage, prompting countries to introduce new policies that consider environmental aspects when building their economies, commonly referred to as the circular economy. Countries financially and politically support circular startups that take sustainable aspects into account in their production. The question here is: What is the role that circular startups play in the development of circular economy ?

Research Hypotheses:

- Circular economy is an effective approach that aid in the transition toward circular economy
- The circular economy is easy in theory but challenging to put in practice

Research objectives:

- Analyzing the role of circular startups in the circular economy
- Presenting different strategies and types of circular economy
- Providing general background information about circular economy

Research Methodology:

We used a descriptive approach in our theoretical article and drew on existing literature to understand circular startups and their impact on the circular economy.

2. ENTREPRENEURSHIP:

Entrepreneurship is the process of creating a business, startup, or organization by developing a business plan and obtaining the necessary resources. Emotional factors such as achieving a dream, attraction factors such as developing an innovation, and incentive factors such as proving oneself are also important motivators for entrepreneurship (Prada-Villamizar & Sánchez-Peinado, 2021).

According to York (2010), entrepreneurs are uniquely positioned to transform uncertainty into business opportunities, and realise social and

environmental profit. Despite potential limited resources, entrepreneurs can leverage strategic partnerships with key industry players to drive groundbreaking innovations and ultimately foster sustainable development across all sectors (Doğuş BİNEK, 2020).

The OECD classifies entrepreneurship into two main categories: startups and scaleups. Under this framework, startups are newly created companies that are generally in the early stages of their activity, often with an innovative idea and rapid growth potential. On the other hand, scaleups refer to companies that have passed the launch phase and have shown significant growth in terms of turnover, number of employees or market reach. While profitability can be an important step for both startups and scaleups, it does not alone define these steps. Some researchers see the “startup” as a developmental stage that encompasses different stages of growth, while others focus on other indicators such as market expansion and product development. (Tjutju & Sontha, 2021) .

The main difference between a startup and a scale-up is the type of challenges they face ; for startups the challenge is to find a repeatable and scalable business model, but for scale-ups it's about growing that business model and in the same time maintaining operational control (Bauwens, et al., 2019)

3. CIRCULAR ECONOMY

3.1. Definition Circular economy :

In recent decades, policy makers, entrepreneurs and civil society actors have increasingly faced the challenge of achieving global sustainability, and circular economy practices are involved in the Sustainable Development Goals set out in the UN 2030 Agenda for Sustainable Development (Opstal & Borms, 2023).

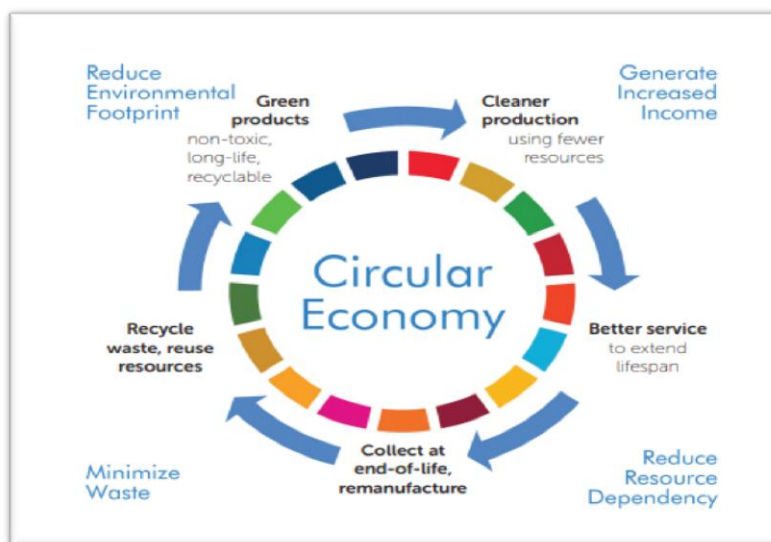
The circular economy(CE) is the most advanced and recent manifestation of the paradigm shift towards sustainability, a socio-economic model that opposes the logic of the linear global economy that has been the basis of economic development (Cristina M. Ostermann, 2021). However, the linear logic generates environmental impacts by the extraction of natural resources and transform it into products, consumption and disposal. According to Schulte (2003) the circular economy only reduces the use of the environment as a waste sink. It creates a self-

sufficient production system that does not throw away residues and reuses materials (Doğuş BİNEK, 2020)

The circular economy is an economic system is formed of four concepts which are : reducing, reusing, recycling and recovering materials in production, distribution and consumption processes» (Tuladhar, 2021). The following the concepts of a circular system makes the economy less dependent on primary resources, that means creating a quality environment and achieving economic prosperity and social justice for present and future generations (Opstal & Borms, 2023).

3.2. Circular Economy Model.

Figure1: Circular Economy Model



Source : United Nations Industrial Development Organization

In general, manufacturing consists of extracting raw materials from the environment and transforming them into new products and disposing them later in the environment. This linear process has a beginning and an end. limited resources, Waste accumulation, which causing pollution of the environment. In addition, the manufacturing process itself is often inefficient, resulting in additional waste of natural resources.

CE should focus either on waste management and consider other aspects that can minimize the use of natural resources, such as heat recovery,

condensate recovery, and reuse of process materials. Enabling the transition to a circular economy requires consideration of several factors, including laws, policies, technology, capacity building, and awareness raising. All these factors contribute to overcoming obstacles to CE implementation (Tawanda Collins Muzamwese, 2023)

3.3. Circularity strategies :

Circularity is more than just recycling, One of the most widespread conceptualizations of circularity strategies is the so-called 5R framework .

Table (1) : circularity strategies

STRATEGY	DESCRIPTION
- Regenerate	- Maintain and promot the provision of ecosystem services
- Reduce	- Improve product design and manufacturing efficiency by egnoring the use of certain hazardous substances
- Reuse	- sharing the Return of products after first use, or extend the life of products and parts
- Recycle	- The material is processed, for example by grinding or melting, to obtain a material of equal or inferior quality
- Recover	- Incinerate residual flows and recover embodied energy

Sources : How Circular Start-ups Accelerate the transition of Circular Economy (Bauwens, et al., 2019).

3.4. Benefits of Circular Economy

A circular economy offers significant benefits for society, the environment and business outcomes. The main societal benefits of a circular economy include cost savings and the creation of green jobs. The transition to a circular economy is expected to create up to 700,000 jobs in the EU by 2030. In addition, in 2018, around 4 million jobs were already linked to the circular economy, and the European Commission specifically promotes this job creation in its circular economy action plan. (Tawanda Collins Muzamwese, 2023).

Besides, the environmental benefits of circular economy principles are paramount. The environmental impact is clear and includes:

- Contribution to waste management.
- Reduce raw material use.
- prolong the life of products and decrease the desire to buy new ones.
- Keep the value of the product and closes the loop, rather than relying on waste disposal and landfills.

Finally, the main economic benefits for companies opting for the CE include cost savings through reduced energy and material consumption, avoidance of landfill costs and a better reputation and brand appeal. Moreover, the preservation of resources makes companies more competitive.

4. ENTREPRENEURSHIP AND CIRCULAIR ECONOMIC DEVELOPEMENT

4.1. circulair Startups

Startups are young technology companies with high innovative performance and potential, by exploring and exploiting new ideas, market opportunities and disruptive technologies (Ostermann, Nascimento, & Zen, 2021). Startups whose business models are based on the principles of the circular economy (EC), they put their business processes based on values, principles related to sustainable practices (Tuladhar, 2021). These startups have a high rate of technological penetration in the market and can quickly disseminate the innovations they develop, which can lead to a transformation towards the CE.

Recently circular economic models have gained scientific and social recognition. While these are relatively new areas of research, they include many elements that have been present in organizations for many years. These practices help create innovative businesses that are closely linked to suppliers and customers (Sehnm, Benetti, Schneider, & Marcon, 2023).

Startups can implement circular business models (CBM) and adapt it to market trends without any risks. Circular business models is important for producing and offering more sustainable products and services that can be produced with less waste emissions throughout the production process and after consumption (Sehnm, Benetti, Schneider, & Marcon, 2023).

Such an approach goes a long way to ensuring that a company's strategic stakeholders act synergistically, communicate frequently through common channels, develop a common strategy and contribute to the company's success. In addition, it is crucial to develop strategic resources and capabilities that are essential to customer satisfaction. It is therefore important to mobilize key players in the entrepreneurial ecosystem, such as universities, incubators and associated risk development intermediaries, to support startups.

4.2. startup's types : Circular startups can be classified into five types: Design-based startups develop products in a way that requires fewer materials, making them more efficient and sustainable. Waste-based startups use waste as raw materials, transforming by-products into valuable resources. Platform-based startups enable consumer-to-consumer markets for the exchange and sale of used goods, extending the life of items and reducing waste. Service-based startups replace ownership with access, promoting the use of products as services rather than personal property. Nature-based startups use natural ecosystems in their production without causing harm and incorporate ecological principles into their business practices (Klofsten, Kanda, & Lamine, 2024).

5. THE IMPACT OF CIRCULAIR STRATUPS ON CIRCULAIR ECONOMY

The transition to a circular economy requires “massive innovation and an unpredictable mindset shift” and offers “highly entrepreneurial opportunities.” (Doğuş BİNEK, 2020). This change allows entrepreneurial

businesses with innovative business models to fill market gaps, become a vital link in reverse supply chains, and generate new business opportunities with social impact.

Startups recognized as a source of the innovation needed to support the transition to circular economy practices that lead to the Sustainable Development Goals (Opstal & Borms, 2023). Many start-ups use circular business models (CBM) to solve sustainability issues such as resource scarcity and waste management, focusing on optimizing the flow of resources and extracting value from different resources using the principles of circularity (Klofsten, Kanda, & Lamine, 2024).

Sustainable startups solve issues related to the triple goal of sustainability (environmental, economic and social), while green startups focus on creating economic and environmental value.

Start-ups have the opportunity to develop innovative BMs based on circular economy principles from the outset. Despite the challenges faced by historical actors and startups to adapt their economic model (BMI) innovations to circular logic, However, existing companies need to rethink their business models (BM) and develop business models based on new ideas and technologies to improve their market performance and meet the challenges of the circular economy

startups. They contribute to the formation of new market logics and the transition to sustainability in different industries. (Cristina M. Ostermann, 2021)

In practice, startups and incumbent operators can adopt CBM to varying degrees and integrate it as a complementary, secondary or primary process. Startups can support the transition to a circular economy by leveraging new technologies and unconventional approaches, solving problems through unconventional thinking, disrupting markets and fostering sustainable innovation (Kurileva, 2023).

5.1. Research case: The role of circular startups in the transition to a circular economy in the Netherlands.

This example discuss the role of circular startups on the circular economy in the Netherlands based on comparing circular startups with existing

enterprises. The study, led by researchers from Utrecht University, examines how circular startups can help accelerate the transition to a circular economy. The results are as follows :

Circular startups could help accelerate the transition to a circular economy (CE) in the Netherlands. First, it has been shown that circular startups pursue more circular strategies than established large companies. 54% of circular startups adopt regeneration and reduction strategies, compared to 35% of historical companies. In addition, circular startups often operate on biological cycles, generating continuous cash flows from organic nutrient processing, which is still rare in established businesses. Overall, this means that circular startups can help large companies innovate, addressing circular activities that are often overlooked by large companies and paving the way for the next level of the circular economy. This suggests that circular startups can make an important contribution in supporting the transition to a circular economy. While most circular startups are still in the early stages of development in terms of business growth, but this is not necessarily due to their circular nature, as most traditional startups are also in the early stages (Bauwens, et al., 2019).

5.2. Reference to Algeria case :

Perhaps the most important factor in the transition to a circular economy is a positive political climate. Algeria is taking steps to transition to a circular economy. This includes political and financial support for the plastics recycling sector to reduce the amount of plastic in the environment, for example, in some cases through the reuse of purified water. Additionally, Algeria aims to increase the reuse rate of purified water to 40% recycling, 47% hazardous waste, and 60% inert waste by 2035. These are all measures aimed at supporting the transition to a circular economy (drouiche, 2023)

This approach can lead to reduced waste generation, reduced dependence on imports of key raw materials, increased employment opportunities and reduced environmental impact. Furthermore, our research confirms that Algeria wants to transition to a circular economy through investments in small and medium-sized enterprises. However, the latter have limited

innovation capacity and do not have flexible or stable business models, so they have not contributed much to this transformation.

Based on theoretical studies, the transition to a circular economy faces major challenges in the implementation of circular economy policies.

They are mainly divided into four categories. The need to redefine value chains, balance the circular economy with business interests, promote circular behavior and develop effective policies. That's why, Transition to a circular economy will largely depend on circular start-up companies that share certain characteristics with the characteristics of circular economy. Moreover, our research on the Algerian case did not find any Algerian academic research on circular startups. Also, statistics regarding the presence of such startups in Algeria were not available.

CONCLUSION :

The results of our theoretical study on the role of circular startups in the transition to a circular economy revealed that this area of research is relatively new and lacks in-depth studies. A study conducted abroad by the Utrecht University in the city of Geneva showed that circular startups play a very positive role in supporting the state economy.

However, other studies highlight the difficulty of measuring the impact of circular startups due to their significant financial and technical requirements.

In addition, when we conducted a theoretical study to understand the Algerian policy on the digital economy, we found that Algeria attaches great importance to small and medium-sized enterprises in its policy. During our research, we also found that there is no scientific research on circular startups in Algeria and we found no statistics reflecting this.

Results :

- Entrepreneurs are essential to solving complex problems with high levels of uncertainty and risk, as they have the ability to create value from such uncertainty.

- Circular startups are largely unknown, but they have a potential to contribute to accelerating the transition to circular economy.
- Innovative recycling technologies often require advanced technical knowledge. However, circular startups tend to focus on simple but innovation to establish companies.
- The circular economy is relatively new and its development is subject to various uncertainties. This is why financial institutions often hesitate to lend to startups.

Bibliographie

- alonso-almeida, m. d., rodriguez-anton, j. m., & perramon, j. (2019). institutional entrepreneurship enablers to promote circular economy in the european union: impacts on transition towards a more circular economy. *journal pre-proof* , 2.
- bauwens, t., mees, r., gerardts, m., dune, j. v., friedl, h., daniels, c. v., et al. (2019). *how circular start-ups how circular start-ups can accelerate the circular economy transition*. utrecht university.
- cristina m. ostermann, l. d. (2021, october 29). business model innovation for circular economy in fashion industry: a startups' perspective. *frontiers in sustainability* .
- doğuş binek, k. a.-m. (2020). small and medium-sized enterprises within the circulareconomy: challenges and opportunities. *hungarian agricultural engineering* .
- drouiche, n. (2023, july 21). *l'économie circulaire en algérie : potentiel, perspectives et défis*. récupéré sur <https://fr.linkedin.com/pulse/l%c3%a9conomie-circulaire-en-alg%c3%a9rie-potentiel-et-d%c3%a9fis-nadjib-drouiche>
- klofsten, m., kanda, w., & lamine, w. (2024). start-ups within entrepreneurial ecosystems: transition towards circular economy. *sage* .
- kurileva, k. (2023, november). *startups powering the shift towards a circular economy*. consulté le janaury 2024, sur medium: <https://medium.com/mettatalks/startups-powering-the-shift-towards-a-circular-economy-f6c1ad45f000>

- opstal, w. v., & borms, l. (2023, fevrier 18). startups and circular economy strategies: profile differences, barriers. *journal of cleaner production* .
- opstal, w. v., & borms, l. (2023). startups and circular economy strategies: profile differences, barriers and enablers. *journal of cleaner production* .
- ostermann, c. m., nascimento, l. d., & zen, a. c. (2021, october 29). business model innovation for circular economy in fashion industry: a startups' perspective. porto alegre, brazil.
- othman, a. (2022). *towards a circular economy in the arab region*:. arab monetary fund: arab monetary fund.
- prada-villamizar, s., & sánchez-peinado, e. (2021). entrepreneurship, innovation, and internationalization: the moderating role of the institutions.
- sehnem, s., benetti, k., schneider, k., & marcon, m. l. (2023). improving startups through excellence initiatives: addressing circular economy and innovation. *springer* .
- tawanda collins muzamwese, l. f.-g. (2023, october 29). the role of sustainable business networks in promoting a circular economy in africa—a systematic literature review. *wires energy environ published by wiley periodicals* .
- tjutju, n. a., & sontha, n. k. (2021). challenges of start-ups developing circular business models. linköping university.
- tuladhar, a. (2021, october). circular economy and start-ups: business models, collaboration, and impact. *circular economy and start-ups: business models, collaboration, and impact* . school of management: university of bath.