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Abstract: This article aims to present an integrated conceptual framework for the circular economy (CE) based on critical success factors (CSFs), for Italian business incubators (BIs). This structure aims to contribute to the formulation of strategic planning based on CSFs in the field of circular business model CBM in the light of BIs, increasing sustainable entrepreneurship in Italy. This structure aims to contribute to the formulation of strategic planning based on critical success factors in the field of circular business models, increasing sustainable entrepreneurship. The research was elaborated from the specialized literature and based on the expert judgment for external validation. Data were collected through a judgment matrix. This research starts with a gap in the literature on this object. It is hoped that this conceptual framework can guide the actions of decision makers, policy makers, governments and entrepreneurs, promoting gains with competitive advantages, boosting economic development and reducing harmful effects on the environment. The building-up and management of a circular business model require highly complex analytical approaches, which include subjective elements. Thus they demand the technical mastery of various technological, legal, financial and political aspects and procedures. CSFs may represent a strategic tool, increasing the institutional capacity of BIs and the Entrepreneurs in their assignments of formulation, evaluation and execution of such models. It is hoped that this integrated proposal can serve as a facilitator instrument of improvement, contributing to the quality of services and the enhancement of agility to decide on issues inherent to environmental protection. This framework does not intend to be complete, but it is our intention to make it a generator of strategic elements for the BIs in Italy, in such a complex issue, as it is the case of the circular economy the the perspective of the BIs.

Keywords: Circular Economy, Sustainable Entrepreneurship

1. Introduction

The circular economy (CE) is gaining increasing attention in Europe and around the world as a potential way for our society to increase prosperity, while reducing dependence on primary materials and energy (The Ellen MacArthur Foundation, 2015). This study focuses on Italian business incubators (BIs). These ventures are of great relevance for economic development and growth, generate jobs and promote entrepreneurship in Italy (Auricchio, et.al., 2014), particularly, the sustainable entrepreneurship. To Stefanescu and On (2012), the importance of entrepreneurship and sustainable development is well represented in the literature (Cantillon, 1755; Marshall, 1890; Knight, 1921; Shumpeter, 1934, 1949; Stevenson, 1985; Drucker, 1985; Reynolds, 1991; Thorton, 1999; Shaver and Scott, 1991). To Ghisellini and Ulgiati (2019), Italy has a scarcity of natural resources and depends largely depends on imports (in particular fossil energy and metals) (Spaini, 2017).

According to Ghisellini and Ulgiati (2019), Italy has approved a series of policy actions towards the adoption of CE in the country such as the law 221 (28 December 2015) and other legislative decrees [...]. To Pieroni; McAlonee; and Pigosso (2019), CE is considered a means to achieve sustainability […] (Geissdoerfer et al., 2017). In addition, to Agyemang et.al. (2018), [...] CE considers both social benefits and improves environmental protection (Jawahir and Bradley, 2016; Govindan and Hasanagic, 2018). In order to be successful, the transition to the circular economy requires systemic changes in the formulation of business models in organizations and redesigning new business models represents a challenge (Pierone et.al., 2018). According to Jesus et.al. (2019), "transition is dependent on strategy-intensive holistic manoeuvres [..."] (Kanger and Schot, 2018; Schot, 2016; Schot and Kanger, 2018; Velez et al., 2018).

In this way, we understand that the development of a circular business model is a highly complex and therefore costly and risky procedure. In addition, each model should be developed from a particular context, with limits to imposing standardized procedures in detail. To the extent that the circular business model has to satisfy the perspectives of such different actors: customers, suppliers, partners, governments, other stakeholders, its preparation must sometimes contemplate conflicting criteria.

To summarize, circular business model (CBM) is like a complex chain of events and decisions that can break anywhere in the chain, such as: unrealistic predictions or a waste of resources, inappropriate strategies and practices, promotion of inappropriate public policies, marketing, technical, economic and financial issues, among others. These issues can have substantial impacts on social, economic and environmental perspectives. The challenge is to define strategies to encourage economic growth and environmental protection, alongside social issues. Hence, CBM must be
According to Rockart (1979), CSFs should be understood as the minimum number of areas that should present satisfactory results to ensure satisfactory results for the organization. The CSFs method is a tool to support strategic planning, which emerged in the 1960s, with Daniel (1961), and was popularized by Rockart (1979). According to Quintella, Rocha, and Alves (2005), the FCS method defines the key performance areas for the organization to complete its mission. To Boynton and Zmud (1984), FCS can come in two forms: 1) Barriers that give the company a competitive advantage; and 2) Critical performances [...] (Verstraete (2000). According to Hart et al. (2018), there must be barriers to the growth of the circular economy. According to Agyemang et al. (2018), there are several studies that have identified EC drivers and barriers [...] (Geng and Doberstein, 2008; Moktadir, Rahman, Rahman, Ali and Paul, 2018; Ellen MacArthur Foundation, 2015), but studies specific to BIs have not been identified.

This study considers CSFs as an instrument to support the CBM based on the ReSOLVE from The Ellen MacArthur Foundation (2015). This study is based on a gap in the literature on this object. In a study developed by Mura, Longo, and Zanni (2020) on CE in Italian SME, the following barriers to the implementation of EC practices were identified:

- Uncertainty about response times from public administrations in the area of sustainability
- Lack of coordination of regulations at EU, national, regional and local level in the field of sustainability
- Bureaucratic difficulty in applying the legislation on sustainability (e.g. waste, water) by companies
- The difficulty of orientation in the renewable energy market
- Lack of clear guidelines to define sustainability in small and medium-sized enterprises
- Perception of sustainability as a cost and not as an investment

Thus, the CBM is based on environmental protection. The challenge is to define strategies to encourage economic growth and environmental protection. Hence, CBM towards sustainability requires efficient planning and the CSFs can be mechanisms to make the decision spectrum intelligent. This article aims to present an integrated conceptual framework for a circular economy based on CSFs, for Italian business incubators (BIs). This structure aims to contribute to the formulation of strategic planning based on CSFs in the field of CBM in the light of BIs, increasing sustainable entrepreneurship in Italy. This framework was elaborated from the specialized literature and validated externally by specialists. This research was developed from a gap in the literature on this object. It is hoped that this conceptual framework can guide the actions of decision makers, governments and entrepreneurs, promoting gains with competitive advantages towards sustainable entrepreneurship. Our work is structured according to the sections as follows: Section 2. Integrated framework: CSFs and CE business models - A proposal; and section 3 - Final words.

2. Integrated framework: CSFs and CE business models - A proposal

To achieve the objective of this research, this section presents an integrated framework based on the critical success factors and the ReSOLVE business model developed by The Ellen MacArthur Foundation (2015). The integrated proposal is addressed to BIs from Italy. For a better understanding of the theme, we understand that it is relevant and presents a proposal in the light of the CSFs, since this method allows the organization to better guide its performance based on its choices in the decision-making process, which is so uncertain and risky. Business BIs are a stimulus to innovation and entrepreneurship in Italy, with a strong impact on the economy and job creation in that country (Auricchio, et al., 2014). For this reason, like any other organization, it is necessary here, as a preparatory phase, to present an integrated structure that guides the entrepreneurs of these organizations in their decisions towards achieving their economic, social and environmental goals. The proposal considers a sequence of procedures as follows: 1 - elaboration of the framework from the specialized literature on: the CSFs and business model (The Ellen MacArthur Foundation, 2015). For external validation, the proposal was submitted to specialists (8), selected by technical and scientific criteria, with knowledge about this object: professionals from organizations (governmental and non-governmental) that are directly involved with sustainability, such as researchers, managers, directors, technicians, among others. 17 questionnaires were submitted to the specials and returned 8 answered. Figure 1 presents the proposal as follows:

- **Critical Success Factors (CSFs)** to support the circular model based on ReSOLVE (Based on The Ellen MacArthur Foundation (2015): CSFs support managers in identifying the information that supports strategic planning, in the short and long term [...] (Monteiro, 2012). O'Brien (2002) argues that CSFs are a small number of important factors that managers believe to be the key to the success of their companies. Leidecker and Bruno (1984) and Thomas (1988)
Argue that CSF is linked to the company’s business model or strategy [...]. According to Leidecker and Bruno (1984), CSFs can be identified based on the following methods: 1 - Environmental analysis; analysis of the industry structure; industry and business experts; Competition Analysis; Analysis of the dominant company in the industry; company valuation; temporality and intuitive factors; and results of the impact of profits on the market strategy (ILEM) (Monteiro, 2012).

**ReSOLVE.** According to The Ellen MacArthur Foundation (2015), the business actions of the circular economy are: Regenerate, Share, Optimize, Loop, Virtualize, and Exchange - This all makes up ReSOLVE framework.

- **REgenerate.** It presupposes the switch to renewable energy. That is, from fossil fuels to renewable energy. These are actions to recover, retain and regenerate the health of ecosystems [...].
- **Optimize.** It is the increase in performance / efficiency, with the reduction of waste and optimization in the use of resources [...].
- **Loop.** It presupposes processing, recycling and remanufacturing for the return of resources to the economy instead of disposal [...].
- **Virtualize.** It presupposes to provide utility virtually, such as online purchases, autonomous vehicles, virtual offices [...].
- **Exchange.** It presupposes a change in the way of doing things, applying new technologies, such as 3D printing and electric motors, for example [...].

Soon after presenting the conceptual framework, the next step was the validation of the proposal for CE. This procedure has been performed by specialists selected by technical and scientific criteria. In this way, professionals with the following profiles were selected: incubator managers, researchers from higher education institutions, environmental managers, government managers. Of course, all respondents deal with environmental management and...
sustainability. In other words, we seek to identify professionals from BIs, governments, academia and non-governmental institutions involved in this cause. This validation has been carried out through a scalar questionnaire sent through googleforms. The experts suggested increasing the model with a degree of detail regarding the critical factors circular success (CFCSs). CFCSs can be identified in the light of literature, interviews and/or consultation with specialists and through methods such as: environmental analysis, analysis of industry structure, temporal factors (Oliveira, 2004).

The study of the literature and the decantation in it, from the CFCSs to the circular model, requires a refined technique. Of the literature consulted, there are still few documents that indicate the CFCSs. Most of the specialized literature should be investigated using several filters. Thus, the referred CSFs may appear, implicitly, when the literature mentions restrictive factors and/or barriers to the adoption of circular models. Thus, they presented the following factors as a suggestion of the critical success factors: political/law/regulation; market, economic and financial; and finally, the technical factor (Figure 2):

![Figure 2: CFCSs for EC according to specialists](image)

Table 1 shows the legend for the Critical factors of circular success for the circular business model (CCSFs).

**Table 1: Legend for Critical factors of circular success (CFCSs)**
<table>
<thead>
<tr>
<th>Groups – CFCSs for CE</th>
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<tbody>
<tr>
<td>Economic Financial</td>
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<tr>
<td>FCDP - CE</td>
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<td>ROI – CE</td>
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<td>ROA - CE</td>
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<td>B - CE</td>
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<td>EFIM - CE</td>
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<td>FAM - CE</td>
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<td>Technical</td>
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<td>FMETI – CE</td>
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<td>SP – CE</td>
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<td>MMFD - CE</td>
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<td>IEF - CE</td>
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<td>CM - CE</td>
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<td>Market</td>
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<td>F - CE</td>
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<td>Political</td>
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• **CFCSs - Economic Financial:** when defining this factor, we seek to know issues regarding behavior / trends on economic and financial issues, such as: return, term, costs, economic and financial balance, cost structure (best combination); economic and financial indicators, [...]. Having this information, certain points are ensured to allow the adequacy and efficiency in the management of sustainable projects.

• **CFCSs - Technical:** with this factor it is intended to know the behavior on technical issues such as, for example, guidelines and methodologies for the preparation and evaluation of sustainability programs.

• **CFCSs - Mercadológico:** here are questions related to the market, such as, for example, users, service level, supply, demand, macroeconomic aspects that influence business, the actors involved, partnerships and alliances, demand, competition, technologies, institutional relations, incentive program advertising; intermediation of financial agents; system user satisfaction; monitoring of market costs; among others. By analyzing these individual issues as a whole, it is possible to know what is happening with this factor and how this situation affects the performance of the sustainability program.

• **CFCSs - Political:** this block seeks to cover the following critical themes: institutional organization for the policy of tax incentives (the success of the programs depends on the quality of the institutional organization, the legal and technical instruments developed and the means forwarded); tax legislation policy; competition and consumer protection policy and legislation in tax incentive programs; environmental legislation policy; labor legislation policy; inspection and control; safety regulation; legislation appropriate to the programs with a view to regional / local development contractual clauses properly defined; social organizations involved in programs; interest, exchange rate, inflation, among others. More specifically, it is necessary to have information regarding the mechanisms that make investment possible; containment of political crises, etc. By doing an analysis of the information both individually and as a group, it is possible to know what is happening with this factor and how this situation affects the overall performance of the sustainability of the program.

Este framework mostra a integração entre CE e CFCSs (Table 2).
Table 2: Integrated between CFCSs and CE based on the ReSOLVE framework.


<table>
<thead>
<tr>
<th>CE</th>
<th>CSFs</th>
<th>Outcomes BIs</th>
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| Regenerate        | Through the CFCSs it is possible to identify information on: changes to renewable energy and materials; retention, recovery and regeneration of ecosystems; and recovered return of biological resources to the biosphere. Through the CSFs it is possible to identify information on: a land regeneration such as the replacement of finite fossil fuels for renewable fuels. That is, information on ecosystem recovery. | • Social  
• Economic  
• Environmental |
| Share             | Through the CFCSs it is possible to identify information on: sharing about the reuse of products among users, as well as extending product life and durability. Through the CSFs it is possible to identify information about: sharing about the elimination of waste and duplication. | • Social  
• Economic  
• Environmental |
| Optimise          | Through the CFCSs it is possible to identify information on: the optimization of the increment and efficiency of the products; removal of residues in production and the supply chain; leverage big data, automation, remote control and direction. Through the CSFs it is possible to identify information on: the removal of waste of energy and materials in the production process. This presupposes the use of technologies to maximize the use of resources. | • Social  
• Economic  
• Environmental |
| Loop              | Through the CFCSs it is possible to identify information on: the reuse of materials or even recycled or remanufactured. That is, the products are recovered and return to the economy again, instead of being discarded. | • Social  
• Economic  
• Environmental |
| Virtualise        | Through the CFCSs it is possible to identify information about: virtual utilities, such as music purchases, autonomous vehicle fleets and virtual offices. | • Social  
• Economic  
• Environmental |
| Exchange          | Through the CFCSs it is possible to identify information on: the replacement of old materials and / or equipment with new technologies. That is, replacing the old ways of doing certain activities with more modern mechanisms. | • Social  
• Economic  
• Environmental |

We suggest the following propositions:

We believe that CFCSs have a positive effect on CE ReSOLVE at the BIs. This depends on the degree of impact of each CFCSs (Political / Legal, Technical, Market and Economic and Financial) on CE ReSOLVE at the BIs. Accordingly, we have the first proposition as follows:

**Proposition 1.** The CFCSs have a positive effect for CE ReSOLVE at the BIs and promote sustainable entrepreneurship

On the other hand, CE ReSOLVE has a positive effect on CFCSs and social, economic and environmental performance. So we have the second proposition as follows:

**Proposition 2.** CE business models positively mediate the relationship between organizational CSFs and sustainable performance in BIs and promote sustainable entrepreneurship

Finally, CE business models from CFCSs demand new knowledge from entrepreneurs, government policy makers, customers, suppliers, and other partners, to support social, economic and environmental performance. Thus, we have the third proposition:

**Proposition 3.** CE business models from CFCSs require new knowledge from entrepreneurs, policy makers and other partners to support sustainable performance and promote sustainable entrepreneurship.

We understand that these proposals presented are guides for future studies. We recommend that this study be continued and updated on a permanent basis, enabling the monitoring of environmental changes.
3. Final words

This article aims to present an integrated conceptual framework for CE based on CFCSs, for Italian BIs. This structure aims to contribute to the formulation of strategic planning based on CFCSs in the field of CBM in the light of BIs, increasing sustainable entrepreneurship in Italy. This structure aims to contribute to the formulation of strategic planning based on critical success factors in the field of circular business models, increasing sustainable entrepreneurship. In this way, this integrated framework is an initial proposal that still has a long way to go, and may undergo adjustments in its component variables, especially the CSF and its elements that demand new priorities over time and the dynamics of the environment, especially the external one. Recalling that for political reasons many projects were lost.

Political issues must be placed on the agenda as a relevant factor in the implementation of circular models, and deserves special attention from government managers. On the other hand, market issues, such as technological innovations, the growing demand for sustainable products, with customers and managers increasingly aware, that economic development must be translated into high-performance environmental and social practices. Thus, a more pragmatic and efficient orientation is sought, subsidizing guidelines for long-term development, ensuring competitiveness with social and environmental responsibility. It is in this panorama that sustainable entrepreneurship gains emphasis. Therefore, this structure does not claim to be complete, but it generates strategic elements for the CE and environmental sustainability, contributing to the advances in the state of the art and state of practice on the issue.

3.1 Implications for sustainable entrepreneurship

Sustainable entrepreneurship is a means of dealing with environmental degradation (Koea, Omarb, and Sa’ari, 2015). In this spectrum, this framework can support entrepreneurs in improving the strategic planning of business incubators oriented to sustainability, since CFCSs allow identifying information, especially from the external environment that managers must in fact focus their efforts with a view to achieving superior sustainable performance. In this way, the circular model based on RESOLVE has a more pragmatic and systematic orientation in CSFs, making the spectrum of decision-making more intelligent, enabling an improvement in the use of resources: technological, human and financial, defining strategies through initiatives that in fact lead to superior economic, social and environmental results. This integrated model allows decision makers in BIs to implement an intelligent system for a circular economy based on CFCSs, since through CFCSs BIs managers can identify the information needed to support the decision-making process. Once the CSFs are secured, the results of the BIs will also be secured.

3.2. Implications for policy

Our work has a number of implications. For decision makers, entrepreneurs and policy makers, it represents an advance towards economic development parallel to sustainability. The integrated model promotes better guidance, especially after validation, in which experts suggest the CFCSs, thus providing lines of knowledge to be pursued in this phase of transition from a linear model to a circular model. The proper exercise of the complex decisions present in a circular model requires the application of methodologies specially designed in accordance with the particularities of each country, region and project. This business model presupposes the combination of interests of different actors, covering both sectors: public and private.

One of the points that very well needs to be detailed at this stage is the issue of regulation, which presents itself as a major challenge, being able to establish a solid and stable regulatory framework, which promotes the returns arising from the necessary investments to be effectively made, minimizing scratches. The reform of the legislation in order to speed up the development of the circular model must be guided by the strategic planning of the country, the region and business incubators. It is evident that mechanisms like this can only be broadly applied if they are the objective of a firm and consistent policy, which permeates the various administrative bodies and Powers at national, regional and local levels. As a suggestion, some initiatives were presented to move forward with the circular model:

• The creation of institutional structures is presented as a central element of strategic planning, promotion and incentive to sustainable entrepreneurship, through the BIs, and also to the respective intellectual capital of the country.

• In addition, encouraging government and industrial policies at regional and local levels, through knowledge networks, is essential.

• Mobilization of society, through different sectors of society, particularly those that would be potentially active to encourage the cause, such as researchers, non-governmental organizations, and entrepreneurs involved with the theme of sustainability.

• Legislative reform program, on the agenda, we suggest starting with legal issues, posed as a challenge.

• Generalized training programs, established based on the blocks of knowledge defined based on CFCSs.

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In our opinion, we believe that the participation of government officials and other actors involved in sustainability is fundamental in the arena of formulating governmental and industrial policies for the circular economy, stimulating sustainable entrepreneurship, through business incubators, governments and universities, in promoting sustainable economic growth. We believe that these actions can start from this circular RESOLVE model supported by the systematical approach for achieving a satisfactory sustainable performance.

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