Introduction

The concept of Linear Economy, in which resources are used till they lose their utility, falling under the "take-make-dispose" mentality, has ruled our society for quite some time. This model depends on mining the earth, making stuff that wears out, and then throwing it away as a landfill. This kind of economic model, which is often referred to as a "cowboy economy" because it relies on both infinite resources and the ability of nature to take in limitless waste without blinking, pushes expansion not based on quality but rather quantity (Siniawer, 2018; Morseletto, 2023). However, doing so enacts severe ecological and social effects, which further deplete its resources, affecting the environment in such a manner that potentially leads to the extinction of species, ushering us in an inevitable doom (Goyal et al., 2018; Ghisellini & Ulgiati, 2020).

There is wide agreement that the linear economy, with its "take-make-dispose" model, relies on large quantities of easily accessible resources and energy, which will produce huge amounts of waste. We dig natural resources and turn them into products that eventually end up getting disposed of or recycled by the systems (often through different countries) we have put in place to facilitate disposal and recycling, causing pollution and damaging ecological footprints. This development paradigm assumes that resources are infinite and waste is either non-existent or can be neutralized effectively through economic activities (Boulding, 1966). It celebrates growth in terms of production at whatever cost by focusing on Gross Domestic Product (GDP) while ignoring the ecological and social costs.

The constraints of the linear economy are exposed as our planet bears witness to growing environmental issues. The global concentration of material and energy resource consumption in industrialized core regions, combined with their worldwide raw materials extraction, intensifies ecological imbalances. The way regulations and, worse yet, accounting rules are set up supports this model to the detriment of producers since they do not have any requirement to pay for externalities

(Sariatli, 2017). This cannot continue indefinitely without major negative long-term externalities like pollution or depletion of resources, which have a major impact on economic, social, and environmental sustainability.

The Circular Economy (CE), on the other hand, is a systemic model that is trying to change our whole way of producing and consuming resources. It is designed to be a circular system with minimal waste and continuous use of new or previously used materials (Ellen MacArthur Foundation, 2017). This new way of thinking not only addresses the root contradictions in a linear economic system, but it also is more sustainable, resource-efficient, and promotes longer-term economic stability. Consequently, it appears as a promising alternative that seems to surpass the linear approach (Ranta et al., 2018). It is based on the concept of building closed loops for products, materials, and resources by making them reused, refurbished, remanufactured, or recycled (Ellen MacArthur Foundation, 2013a, 2013b, 2013c). It aims to ensure that the use of resources is maximized and waste minimized, leading to a massive shift in how we produce and consume (Geng et al., 2009).

CE originated in disparate schools of thought and economic theory. The core philosophy of CE is grounded in ecological economics and systems theory; the economy as a holistic system, embedded within nature. CE offers guidelines for product design, such as non-toxic materials, disassembly, and recyclability. It promotes keeping products and materials in use as long as possible, which keeps their value within the economy (Lewandowski, 2016). And practices such as regenerative agriculture build upon natural systems, aiding and abetting sustainability.

Advancements in technology seem to be one of the biggest enabling factors for a transition towards Circular Economy. Life Cycle Assessment and Material Flow Analysis are two important tools that help us to assess how the shifts in human-environment systems impact environmental performance by resource efficiency (Brunner & Rechberger, 2004; Finnveden et al., 2009). Technologies such as the Internet of Things (IoT), blockchain, and big data analytics allow for better tracking across supply chains, making circular systems more robust (Antikainen et al., 2018).

Adopting Circular Economy principles into firms' strategies implies high economic gains. The adoption of CE practices by companies minimizes material costs, opens new business prospects, and provides for more effective use of resources. As a result, it carries not only cost savings but also competitive edges and greater returns by employing novel production methods along with recyclable materials. The CE practices not only reduce pollution, which naturally leads to less resource consumption and CO_2 emission. Recycling, remanufacture, and design for ease of disassembly are strategies to improve environmental performance and resource efficiency (Barreiro-Gen & Lozano, 2020).

Dealing with the social demands of CE is becoming one of the areas that offer a series of increased advantages such as providing job opportunities, providing safety in products and easing up development procedures to communicate relevant stakeholders better. A move to a Circular Economy will create jobs in recycling, remanufacturing, and product design driving social value as well as making everything more sustainable.

The integration of Circular Economy principles into strategic frameworks such as SWOT analysis can help in building business sustainability. Resource efficiency, waste minimization and closed-loop systems are a hot focus in CE, which match very well with the identification of strengths, weaknesses, opportunities and threats within an organization. If, on one side, SWOT is an important tool, on the other side, it snapshots the reality statically in a predefined time and context. Consequently, more dynamic approaches are needed to scan the CE. A relevant approach used for this perspective – that considers business companies as open systems, with implications on stakeholders' (i.e., supra-systems and subsystems) management, engagement, consonance, and value maximization – is the Viable Systems Approach (VSA).

The Viable Systems Approach offers a complementary, holistic and systemic view of Circular Economy. It blends viability and sojourning concepts to consider how organizations fit within the wider systems of which they are a part (Barile et al., 2013; Golinelli, 2010). Thus, VSA has been helpful in investigating the potential benefits of integrating VSA principles in CE practices to support systems thinking, adaptability and stakeholder involvement. This book uncovers their interconnectedness and how using CE as a tool can be informed by VSA to pave the foundations for resilient circular systems that positively contribute to society. We demonstrate through empirical and theoretical dialogue the application, limitations and address VSA can afford CE practices enabling resilience and value co-creation in economic ecosystems.

Thus, the theoretical framework of this book is focused on several and multi-faced dimensions of CE, considering the origins, definitions, strategies and tools, circular business models, the SWOT perspective, sustainability according to Triple Bottom Line, and the systems thinking to CE, especially the Viable Systems Approach.

Then, objectives, methodology, and analyses refer to the rest of the book and make up the practical composition of this volume.

The analysis of an exploratory and confirmatory nature aims to investigate in depth how companies perceive, implement, and address the circular economy and how this approach affects their performance and challenges.

First, the research aims to analyze the perceptions and practical applications of the circular economy within companies. This involves investigating how business representatives define and interpret the circular economy paradigm and how it is

applied daily. This study seeks to understand the concrete results that companies obtain by adopting the circular model, thus providing a clear picture of the effectiveness and methods of implementation of this economic approach.

A further crucial aspect of the research is identifying the critical issues and challenges that companies encounter in applying the circular economy. This helps reveal common barriers and issues that hinder the full adoption of the circular model, therefore offering valuable insights into overcoming them.

Another dimension explored is the evaluation of the skills and resources necessary to adopt the circular economy. The research investigates whether companies already possess the necessary skills or whether they have to acquire them externally. This assessment helps to understand the training needs and resources needed for an effective transition towards circular economy practices.

Furthermore, the study analyzes companies' future plans related to the circular economy. It explores what strategies and initiatives are planned for the future and how companies intend to evolve further and adapt their circular practices.

Finally, the research focuses on the relationship between circularity and company performance. By analyzing the data collected, the objective is to establish how the adoption of circular practices influences the various performance indicators of companies. To achieve the aforementioned objectives, the dataset used is composed of 113 Italian companies of heterogeneous sizes, considered "virtuous" by the most important trade association in the Italian business world (Confindustria). By publishing cases that are considered to be excellent in the implementation of the circular economy, Confindustria wanted to promote the sharing and contamination of the related practices and business models between companies to increase the sustainability and competitiveness of the national production system.

For exploratory analysis, structured responses from company representatives (entrepreneurs or managers) are used and are then analyzed through a quantitative natural language processing technique (Latent Semantic Analysis) based on the application of singular value decomposition – in particular, principal component analysis (PCA) – combined with hierarchical clustering to detect emerging themes and topics in the responses of companies' representatives (Evangelopoulos, 2013). In addition, regarding the confirmatory analysis, we used the financial statement data of the companies that we obtained from the Amadeus database. To analyze these data, we applied the necessary condition analysis (NCA) to quantitatively identify whether circularity has an impact on the company's economic-financial performance (Dul et al., 2020).

The originality of the research is twofold. First, we analyzed the descriptions of entrepreneurs and managers who explain how circularity has taken on a central role in their companies' strategies. Companies belonging to different production sectors and sizes demonstrate how the circular economy can be effectively implemented in multiple contexts. For each company, we were able to use descrip-

tive sheets that show in detail the company size, the territory they belong to, the phase of the circular life cycle, their circular projects, including objectives, methods of application, skills used and developed, and critical issues addressed. The use of innovative analytical methodologies herein also distinguishes this work from the conventional research on the circular economy in the field of business management. In fact, in addition to traditional statistical techniques such as regressions, we use advanced techniques such as Latent Semantic Analysis and agglomerative hierarchical clustering to analyze interview responses, offering a more detailed vision of circular economy practices. Furthermore, we introduced the logic of necessity by analyzing necessary conditions, which enriches the data analysis with a new perspective on how circularity influences business performance.

As our results show, the views on the circular economy's importance for enterprises are either sustainability-centered or, on the other hand, technology-focused issues that are emphasized by most respondents, who, however, mostly provided balanced answers encompassing both points of view. Regarding how circular models are applied, some emphasize technical and managerial aspects of their application, while others highlight the sustainability outcomes. Several critical issues are also identified, including design, production, market penetration, reuse, recycling, and navigating Italy's legislative landscape, reflecting the complexity and challenges of implementing circular business models for enterprises. There is a heterogeneous array of responses regarding the future vision of how circular economy initiatives should be integrated and implemented. Some respondents, for example, focus on research and development. In contrast, others focus on improving existing circular economy processes and related business models.

Moreover, a smaller group of respondents was primarily concerned with sustainability-related and ecological issues. The heterogeneity of responses underscores the need for quantitative and qualitative analyses to understand the nuances of circular economy practices fully. The work's results confirm that higher organizational circularity is necessarily related to better organizational performance in terms of heterogeneous performance indicators. This highlights circular economy initiatives' broader economic and social benefits, including job creation and workforce integration.

Regarding the structure of this book, after introduction, chapter one introduces the volume and the different theoretical perspectives related to CE and to the framework applied for this study. Chapter two outlines methodological aspects concerning this work and data gathering. Chapter three explores the semantic structure of the responses of companies' representatives, as well as the emerging themes and topics. Chapter four refers to circularity as a key factor of companies' success, discovering the relationship between circularity and heterogeneous performance indicators. Chapter five presents discussion and conclusions of the study.