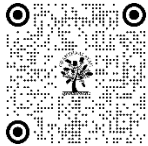


# UNDERSTANDING SUSTAINABLE ENTREPRENEURIAL ECOSYSTEMS: A REVIEW OF LITERATURE AND RESEARCH DIRECTIONS

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## ABSTRACT

This paper presents a comprehensive review of the literature on sustainable entrepreneurial ecosystems, with a focus on identifying key components that drive their sustainability. We highlight four core elements essential for building and sustaining these ecosystems: a sustainability-oriented mindset, the identification of sustainability-driven opportunities and resources, collaborative innovation for sustainable solutions, and the development of markets for sustainable products. Additionally, we discuss several influential contextual factors, such as local culture, stakeholder support, and cooperative networking, which play a role in the longevity of entrepreneurial ecosystems. Based on this review, we propose multiple research directions, including exploring how policy and governance can reinforce sustainable entrepreneurial ecosystems, examining the relationship between sustainability and profitability, and investigating the potential of emerging technologies to promote sustainable entrepreneurship. Our findings offer valuable insights for researchers, policymakers, and entrepreneurs interested in fostering sustainable development and advancing sustainable entrepreneurship.

**Keywords:** Sustainable Entrepreneurship, Co-Creation, Co-Evolution, Sustainable Innovation, Sustainable Goods and Services, Entrepreneurial Ecosystems, Entrepreneurship

## 1. INTRODUCTION

Entrepreneurial ecosystems have become a prominent topic in entrepreneurship research, and the link between entrepreneurship and sustainability is an increasingly important research area.

In order to solve issues related to society and the environment while taking into account their long-term effects, sustainable entrepreneurship must add value. In this regard, entrepreneurial ecosystems are crucial for promoting sustainable entrepreneurship and advancing the UN's Sustainable Development Goals (SDGs).

Exploring pertinent research streams and ideas is crucial to understanding how entrepreneurial ecosystems promote sustainable entrepreneurship and help achieve the SDGs. One such idea is co-creation, which describes the process of cooperative value creation among various stakeholders, including business owners, consumers, and other

ecosystem actors. Creative responses to societal and environmental problems can emerge through co-creation, resulting in sustainable solutions (Ma et al., 2020; Simanjuntak & Sukresna, 2022).

Understanding the connection between sustainable entrepreneurial ecosystems, coevolution is another key concept. Coevolution defines the dynamic and reciprocal relationship between an ecosystem and its constituents, where the ecosystem adjusts to the needs of its constituents and vice versa. Sustainable entrepreneurial practises that support ecosystem objectives and help to realise the SDGs may emerge as a result of coevolutionary processes (Simanjuntak & Sukresna, 2022).

In the context of sustainable entrepreneurship and ecosystems, collective sustainable innovation is also a key concept. It describes the process of developing new ideas and remedies to societal and environmental problems through coordinated effort across various ecosystem actors. Collective sustainable innovation can encourage the development of sustainable corporations that benefit the ecosystem and help achieve the SDGs (Bertello et al., 2022).

This paper address the research gap regarding the function of entrepreneurial ecosystems in promoting sustainable entrepreneurship and achieving the SDGs. They are part of the "fourth wave" of entrepreneurship research, which relates entrepreneurship to sustainability explicitly. The papers explore different facets of sustainable entrepreneurship, such as the function of incubators in encouraging sustainable entrepreneurship (A. T. Rosário et al., 2022), the impact of government policies on sustainable entrepreneurship (Theodoraki et al., 2022), and the role of stakeholder cooperation in promoting sustainable entrepreneurship (Souto, 2022).

The current study explores the mechanisms and processes by which entrepreneurial ecosystems currently support sustainable entrepreneurship. It also looks into the challenges to sustainable entrepreneurship and how technology may help to advance it. For the SDGs to be accomplished and societal and environmental issues to be addressed, it is essential to understand these interactions.

## 2. LITERATURE REVIEW

Entrepreneurial ecosystems have been acknowledged as vital drivers of economic growth and innovation in recent years, with many governments and organizations adopting a strategic focus on their development. While the concept of entrepreneurial ecosystems is still evolving, it has been broadly defined as a set of interrelated elements that facilitate the creation, growth, and sustenance of new ventures in a particular geographic area.

During the current time frame, the concept of sustainable entrepreneurship has emerged as a new field of study that emphasizes the role of entrepreneurs in addressing societal and environmental challenges through the creation of new ventures. Sustainable entrepreneurship is seen as a way to promote economic development while addressing issues such as climate change, poverty, and inequality.

In recent years, governments as well as organisations have adopted a strategic focus on the development of entrepreneurial ecosystems as essential drivers of economic growth and innovation (Lehmann et al., 2022). The concept of entrepreneurial ecosystems is still developing, although it has been widely characterised as a collection of interconnected components that support the inception, development, and sustenance of new businesses in a specific region (Mason & Brown, 2014).

Sustainable entrepreneurship is an emerging field of study that stresses the role of entrepreneurs in tackling societal and environmental problems by starting new ventures (Shepherd & Patzelt, 2023). Sustainable entrepreneurship is viewed as a means of advancing economic growth while dealing with problems like poverty, inequality, and climate change.

An essential area for research is the interaction of entrepreneurial ecosystems and sustainable entrepreneurship (Germain et al., 2022). In particular, research is required to determine how entrepreneurial ecosystems might support sustainable entrepreneurship and advance the Sustainable Development Goals (SDGs) of the United Nations.

Two fundamental ideas that support the growth of entrepreneurial ecosystems that promote sustainable entrepreneurship have been identified as co-creation and coevolution. Co-creation involves collaboration between ecosystem stakeholders to develop new ideas, products, and services that tackle issues related to sustainability. The continuous interaction between the various ecosystem components as they adapt and change over time is referred to as coevolution (O'Shea et al., 2021; Sjödin et al., 2021).

The need for a deeper knowledge of the intersection between sustainable entrepreneurship and entrepreneurial ecosystems has been underlined in recent literature. For instance, (Stam, 2015) has argued that the potential for sustainable entrepreneurship may be limited by the typical concentration on high-growth, high-tech businesses in entrepreneurial ecosystems. Instead, there is a need to support a wider variety of projects that can deal with a wider range of sustainability challenges.

The role of universities in encouraging sustainable entrepreneurship in entrepreneurial ecosystems has also been the subject of current research. Universities have been identified as significant providers of information, expertise, and materials that can aid in the creation of sustainable ventures (Lehmann et al., 2022). Furthermore, universities can also play a significant role in the co-creation of sustainable ventures by collaborating with other ecosystem actors to come up with innovative ideas and strategies.

The idea of sustainability has drawn more and more attention in recent years in the literature on entrepreneurship. Sustainable entrepreneurship aims to provide both economic and social value while also assuring environmental sustainability, in contrast to traditional entrepreneurship, which has typically concentrated on generating economic value through innovation and expansion (Shepherd & Patzelt, 2023). The "fourth wave" of entrepreneurship research has been referred to as the incorporation of sustainability (Germain et al., 2022).

Entrepreneurial ecosystems are now understood to be a major force behind innovation and economic success. But the issue of how these ecosystems may foster sustainable entrepreneurship and support the Sustainable Development Goals (SDGs) of the United Nations has only recently started to draw attention (Stubbs et al., 2022). Sustainable entrepreneurial ecosystems are what result from the integration of sustainable entrepreneurship and entrepreneurial ecosystems.

Sustainable entrepreneurship ecosystem is a network of individuals, organisations, institutions, and policies that work collaboratively to encourage sustainable entrepreneurship through supporting the creation, growth, and scaling of sustainable businesses (Germain et al., 2022). The co-creation and co-evolution comprising a network of actors, such as entrepreneurs, investors: those who make decisions, and other stakeholders, that work together to find sustainable solutions to societal and environmental problems (Zheng & Cai, 2022).

Sustainable entrepreneurship revolves around the idea of co-creation, which entails the active participation of stakeholders in the process of value creation (Holzmann & Gregori, 2023; A. Rosário et al., 2022). Co-creation generates a sense of ownership and commitment among stakeholders while encouraging the development of innovative ideas and solutions (A. Rosário et al., 2022). According to (Stubbs et al., 2022) "coevolution" is the dynamic interaction between participants in the entrepreneurial ecosystem and the environment in which they operate. This interaction results in the formation of new opportunities and challenges.

It's crucial to investigate the circumstances that support the creation and expansion of sustainable entrepreneurial ecosystems. Factors like the availability of financial as well as human capital, favourable policies and regulations, accessibility to markets and networks, and a culture of innovation and risk are important (Mason & Brown, 2014; Rocha & Audretsch, 2022).

Incorporating sustainability into entrepreneurship research is a new wave of research aimed at ensuring economic and social value while also ensuring environmental sustainability. Sustainable entrepreneurial ecosystems provide a promising strategy for achieving sustainable development objectives because they are characterized by co-creation and coevolution. It is necessary to conduct research in order to develop strategies to promote the growth of these ecosystems and to comprehend the factors that allow them to emerge and grow.

## 2.1. OBJECTIVE OF THE STUDY

- To recognize and examine the key components and interactions that make up sustainable entrepreneurial ecosystems
- To investigate the factors that aid or obstruct the growth of sustainable entrepreneurial ecosystems
- To look at the role that market growth for sustainable goods, recognizing opportunities for sustainability, and the role of collaborative innovation in encouraging sustainable entrepreneurship

### 3. METHODOLOGY

This paper uses systematic literature reviews as a research methodology. It entails an in-depth analysis of pertinent literature to pinpoint important themes and trends pertaining to sustainable entrepreneurial ecosystems, including academic journals, books, and reports. Using pertinent keywords and keyword combinations, the search includes databases like Scopus, Web of Science, and Google Scholar. Keywords include "sustainable entrepreneurship," "sustainability orientation," "entrepreneurial ecosystem," "collaborative innovation," and "market creation."

The papers are evaluated for inclusion based on their language and relevance to the research objectives. In order to create an in-depth review of the current state of knowledge on sustainable entrepreneurial ecosystems, key concepts, themes, and findings from the papers are identified during the data extraction process.

We excluded papers written in languages other than English, unpublished papers, and non-peer reviewed literature. However, the systematic approach enables a thorough analysis of the current state of knowledge on sustainable entrepreneurial ecosystems by offering a rigorous and transparent method for identifying and synthesising pertinent literature.

### 4. RESULTS AND DISCUSSIONS

Authors who have had a significant impact on the fields of entrepreneurship, innovation, and ecosystem

Authors	Description	Key points
(Alum & Drucker, 1986; Drucker, 1954)	Peter Drucker - Known as the "father of modern management," Drucker's ideas have had a profound impact on entrepreneurship and innovation. He emphasized the importance of innovation and entrepreneurship as key drivers of economic growth and believed that the purpose of a business is to create and retain customers.	Innovation is the key to entrepreneurship.  Entrepreneurship is the practice of exploiting new opportunities. The purpose of a business is to create a customer. Innovation and marketing are the two fundamental functions of a business.
(C Christensen & Raynor, 2003; Clayton Christensen, 1997)	An expert in disruptive innovation, Christensen's work has influenced entrepreneurs and investors alike. His book "The Innovator's Dilemma" is considered a must-read for anyone interested in innovation.	Disruptive innovation involves creating new products or services that are simpler, more convenient, and more affordable than existing ones. Established companies often fail to innovate because they focus too much on sustaining innovations and not enough on disruptive ones. Innovators need to be customer-focused and willing to take risks to succeed.
(Ries, 2011)	Ries is the author of "The Lean Startup," a book that has become a bible for many entrepreneurs. He advocates for a scientific approach to entrepreneurship and emphasizes the importance of continuous experimentation and learning.	The lean startup methodology emphasizes creating a minimum viable product (MVP) to test assumptions and validate hypotheses. The build-measure-learn feedback loop is critical for iterative improvement and learning. Innovation accounting provides a framework for measuring progress and making data-driven decisions.
(S. Blank, 2005; Steve Blank & Dorf, 2013)	Blank is a serial entrepreneur and educator who has helped to popularize the "lean startup" approach. His book "The Four Steps to the Epiphany" is a classic in	The customer development process is a four-step framework for discovering and validating customer needs. Startups are not just smaller versions of large companies and require a

	the field of entrepreneurship and has been widely influential.	different approach. Founders should focus on testing assumptions, gathering feedback, and iterating quickly to achieve product-market fit.
(Alex Osterwalder et al., 2010; Osterwalder & Pritchett, Yves Pigneur, Gregory Bernarda, Alan Smith, 2014)	Osterwalder is the co-author of "Business Model Generation," a book that has become a staple in the world of entrepreneurship. He developed the Business Model Canvas, a visual tool that helps entrepreneurs to design, test, and iterate on their business models.	The Business Model Canvas is a visual framework for describing, designing, and testing business models.  Value Proposition Canvas is a tool for mapping customer needs and creating a value proposition that solves their problems. Business models should be flexible and adaptable to changing market conditions.
(Sarasvathy, 2001)	A professor of business at the University of Virginia, Sarasvathy is an expert in entrepreneurship and innovation. She developed the "effectuation" approach, which emphasizes the importance of taking action in uncertain environments and leveraging existing resources.	"effectuation" approach, emphasizing taking action and leveraging resources in uncertain environments, providing practical guidance for entrepreneurs. Her work stands in contrast to the traditional "causation" approach, based on extensive research into successful entrepreneurship.
(Ash Maurya, 2016)	Maurya is the author of "Running Lean," a book that provides a practical guide to building a successful startup. He emphasizes the importance of customer development, rapid experimentation, and continuous improvement.	emphasizing customer development, rapid experimentation, and continuous improvement for building successful startups.
(Hoffman, 2018)	Reid Hoffman's book "Blitzscaling," which provides a framework for entrepreneurs to navigate the challenges of rapid growth and scale their businesses to become industry leaders, based on his experience as a co-founder of LinkedIn and investor in successful startups.	Entrepreneurs should focus on creating a network effect, where the value of the product or service increases as more people use it. Blitzscaling is a rapid growth strategy that involves prioritizing speed over efficiency. and focusing on scaling the product or service as quickly as possible.  Successful startups are often those that can create a new market or disrupt an existing one.
(Moore, G. A., & McKenna, 1999)	provides practical frameworks for marketers to develop effective marketing plans aligned with business objectives, covering topics such as segmentation and positioning.	The technology adoption life cycle provides a framework for understanding how new products or technologies are adopted by different groups of customers. Crossing the chasm refers to the challenge of moving from early adopters to mainstream customers and requires a different approach. Companies should focus on a specific target market and create a compelling value proposition to gain traction.

The contributions of various authors to the study of sustainable entrepreneurial ecosystems are compiled in the table above. The papers listed in the table concentrate on factors that support healthy entrepreneurial ecosystems, such as actors' inclinations towards sustainability, collaboration in innovation, and an understanding of sustainable opportunities. In addition, they examine the entrepreneurship process in sustainable ecosystems, contextual factors that



support sustainable development in sharing ventures, and academic-related support programmes. In general, these papers provide insightful information about sustainable entrepreneurial ecosystems.

#### 4.1. KEY FINDINGS AND THEIR APPLICATIONS TO SUSTAINABLE ENTREPRENEURSHIP ECOSYSTEM

- 1) **Peter Drucker:** The objective of an organisation is to attract and keep customers, and innovation is the key to entrepreneurship. This finding emphasizes the value of innovation and a customer-centric mindset in entrepreneurship, which is especially pertinent in the constantly changing business environment of today.
- 2) **Clayton Christensen:** Disruptive innovation entails developing new goods and services that are easier, more practical, and more cost-effective than those already available. Because they place too much emphasis on sustaining innovations and too little on disruptive ones, established companies frequently struggle to innovate. This finding highlights the importance of disruptive innovations for businesses, particularly in the fiercely competitive markets of today.
- 3) **Eric Ries:** Developing a minimum viable product (MVP) to test assumptions and validate hypotheses is a key component of the lean startup methodology. The build-measure-learn feedback loop is essential for learning and iterative improvement. Innovation accounting offers a framework for tracking development and making informed choices. This discovery emphasizes the value of ongoing experimentation and learning in entrepreneurship, which is especially pertinent in the fast-paced and unpredictable business environment of today.
- 4) **Steve Blank:** A four-step framework for identifying and validating customer needs is called the customer development process. In order to achieve product-market fit, founders of startups should concentrate on testing presumptions, gathering feedback, and iterating quickly. This finding highlights the value of agility and a customer-centric approach in entrepreneurship, which is particularly pertinent in the customer-driven and rapidly evolving markets of today.
- 5) **Alex Osterwalder:** visual framework for describing, creating, and testing business models is called Canvas. Indicator of Value A value proposition that addresses customers' problems can be developed using the canvas tool. Business models should be adaptable to shifting market conditions and flexible. This finding emphasizes how crucial it is to create and test customer-centric, flexible, and adaptable business models, which is especially important in the dynamic and unpredictable business environment of today.
- 6) **Saras Sarasvathy:** The "effectuation" approach emphasizes at acting and utilizing resources in ambiguous situations, offering entrepreneurs useful guidance. Her research into successful entrepreneurship, in contrast to the conventional "causation" approach, is extensive. This finding emphasizes the value of acting and making use of resources in unpredictable and complex business environments, which is particularly important in today's markets that are changing quickly and complexly.
- 7) **Ash Maurya:** Stressing the importance of quick experimentation, constant enhancement, and customer development for creating successful startups. In today's quickly evolving and customer-driven markets, this finding emphasizes the value of a customer-centric approach, agility, and continuous learning in entrepreneurship.
- 8) **Reid Hoffman:** the business owners should concentrate on establishing a network effect, in which the value of a good or service rises as more people use it. Blitzscaling is a rapid growth strategy that emphasizes scaling the product or service as quickly as possible while prioritizing speed over efficiency. Successful startups are frequently those that can expand into untapped markets or upend established ones. This finding emphasizes the value of networking and the importance of speed and scalability in entrepreneurship, which is particularly pertinent in today's markets that are highly competitive and changing swiftly.
- 9) **Geoffrey Moore:** The technology adoption life cycle offers a framework for comprehending how various customer groups adopt innovative products or technologies. The difficulty of transitioning from early adopters to mainstream customers is referred to as "crossing the chasm" and calls for a different strategy. To gain traction, businesses should concentrate on a narrowly defined target market and develop an appealing value proposition. This finding emphasizes how crucial it is to comprehend the technology adoption life cycle and develop a

compelling value proposition for a particular target market. This is especially important in the highly segmented and competitive markets of today.

## 5. LIMITATION

This paper has some limitations that should be taken into account, just like any other research study. First, the paper primarily focuses on the opinions and suggestions of a select group of experts in the field of entrepreneurship and innovation. The opinions of such experts may not encompass the full range of viewpoints on the subject, despite the fact that they have had a significant impact and influence in the field.

Second, the main conclusions and suggestions made in the paper are not supported by any empirical data or analysis. Although the experts in the paper are highly qualified and experienced, empirical research should be used to test and validate their theories.

Third, the paper does not take into account the political, economic, and cultural contexts in which innovation and entrepreneurship take place. The conclusions and suggestions made here may not be applicable or pertinent in all situations; they should be taken into account in light of regional circumstances and restrictions.

Finally, the paper is not meant to serve as a comprehensive manual or blueprint for effective innovation and entrepreneurship. Instead, it offers a selection of fundamental notions and guidelines that can serve as a basis for additional research and development.

## 6. FUTURE RESEARCH

Based on the papers several potential areas for future research on sustainable entrepreneurial ecosystems have been identified:

**Longitudinal research:** Additional longitudinal research could be done to better understand how sustainable entrepreneurial ecosystems change over time and how various elements affect whether they succeed or fail.

**Cross-cultural comparisons:** Analyzing the entrepreneurial ecosystems that are sustainable in various nations and cultures could shed light on how context influences these ecosystems.

**Engagement of stakeholders:** More investigation could be done into the support and promotion of sustainable entrepreneurship by stakeholders like local communities, NGOs, and governments.

**Innovation and technology:** More research could be done on the roles that innovation and technology play in sustainable entrepreneurship, particularly with regard to creating and putting into practice sustainable solutions.

**financing and investment:** identifying opportunities for sustainable entrepreneurship, as well as improving them to support the growth and achievement of sustainable ventures, could be the main focus of future research in this domain.

**Education and training:** More research could be done on the best ways to create educational and training programmes that encourage the growth of sustainable entrepreneurial abilities and mindsets.

**Collaboration and partnerships:** More research could be done on the role that collaboration and partnerships play among various actors in a sustainable entrepreneurial ecosystem, particularly in relation to the co-creation of sustainable solutions and the sharing of resources and knowledge.

Future research in the area of sustainable entrepreneurial ecosystems has a wide range of potential directions, and more investigation into these areas could support the development and prosperity of sustainable entrepreneurship.

## 7. CONCLUSION

The sustainable entrepreneurial ecosystem presents valuable insights into how to foster sustainable development through entrepreneurial ecosystems. The paper shed light on various aspects of sustainable entrepreneurship, such as the factors that contribute to the creation and ongoing maintenance of sustainable entrepreneurial ecosystems, the function of contextual factors in promoting sustainable activities within these ecosystems, and the entrepreneurial process of discovering and developing sustainable opportunities.

The paper highlights the value of cooperation and stakeholder support in promoting sustainable development and offers a framework for comprehending how entrepreneurship and sustainability interact. Future studies may look at the

effects of policy changes on the ecosystems supporting sustainable entrepreneurship, how social and environmental impact measurements affect sustainable entrepreneurship, and the connection between sustainable entrepreneurship and economic growth.

In this paper, we contribute to the ongoing discussion about sustainable entrepreneurship and provide insights for policymakers, practitioners, and academics wishing to promote sustainable development through entrepreneurship. Increasing the understanding of what makes entrepreneurial ecosystems resilient.

## CONFLICT OF INTERESTS

None.

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