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FOSTERING ENTREPRENEURSHIP AND SUSTAINABILITY: A MULTI-LEVEL ANALYSIS OF START-UP ECOSYSTEMS IN DIVERSE ECONOMIC CONTEXTS

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Abstract

Entrepreneurial Ecosystems (EEs) are increasingly being recognized as critical drivers of economic growth, innovation, and sustainable development. This study synthesizes insights from recent literature to explore the multifaceted nature of EEs, focusing on their constituent elements, multi-level interconnections, and distinct challenges and opportunities across developed and transitional economies. Drawing on systematic reviews and empirical studies, we delineate key contextual factors—including public policies, financial resources, human capital, and cultural influences—that impact start-up success and the broader transition towards a Circular Economy (CE). The analysis highlights the importance of an integrative multi-level framework (macro-meso-micro) to understand how EEs support safe and planetary boundaries. Special attention is paid to the unique dynamics of EEs in transitional economies, where factors such as political entrepreneurship and corruption can significantly impede sustainable growth. This work underscores the necessity of tailored policy interventions and collaborative multi-stakeholder approaches to cultivate resilient and sustainable entrepreneurial landscapes globally.

Keywords: Entrepreneurial Ecosystems, Circular Economy, Start-Ups, Multi-Level Approach, Sustainable Entrepreneurship, Transitional Economies.

Introduction

Entrepreneurship has long been acknowledged as a vital force for socioeconomic growth and prosperity, contributing significantly to innovation, job creation, and national competitiveness. The concept of the "entrepreneurial ecosystem" (EE) has emerged as a central framework for understanding the complex interplay of factors that enable and constrain entrepreneurial activity within a specific territory. This systemic view moves beyond individualistic entrepreneurship studies to incorporate broader social, cultural, and economic forces.

The increasing global interest in EEs stems from their potential to foster high-growth entrepreneurship, which, in turn, drives economic development and addresses pressing socio- economic challenges such as unemployment, inequality, and poverty. Simultaneously, the concept of a circular economy (CE) has gained prominence as a strategic response to environmental and social sustainability challenges, advocating for a shift from linear to regenerative economic models. Start-ups, with their inherent agility and innovative spirit, are considered crucial agents in this transition towards CE by developing novel business models that emphasize reducing, reusing, recycling, and recovering materials.

Despite the rapid increase in research, a single level of focus often limits a comprehensive understanding of the mechanisms fostering these transitions. This paper addresses this gap by synthesizing findings on EEs within a multi-level approach—macro, meso, and micro—and examining how these interact to promote both general entrepreneurship and, specifically, the circular economy. We also explore the distinct characteristics and challenges faced by EEs in different economic contexts, contrasting developed economies with transitional ones.

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Literature Review

The concept of entrepreneurial ecosystems, though growing in popularity, remains loosely defined and measured. Various definitions highlight the involvement of interdependent actors and factors that enable productive entrepreneurship. Historically, the foundational ideas emerged in the 1980s and 1990s, shifting focus from individual entrepreneurs to a broader community perspective. The term "ecosystem" itself, borrowed from biology, signifies a biotic community, its physical environment, and all interactions within it, emphasizing co-evolution and mutualistic interdependence among diverse organizations and actors.

Several scholars have proposed frameworks for understanding EE elements.

Isenberg (2010) formulated six distinct domains: policy, finance, culture, support, human capital, and markets. Expanding on this, Stam (2015) proposed an integrative model of ten elements including formal institutions, culture, networks, physical infrastructure, demand, intermediate services, knowledge, leadership, finance, and talent. These elements are mutually interdependent and co-evolve within a territory. Research suggests that understanding the interrelationships among these elements is crucial for a systems perspective.

The importance of a multi-level approach is particularly emphasized in the context of the circular economy. This approach examines macro-level explanations (public policies, regulations, infrastructure), meso-level dynamics (circular supply chains, circular ecosystems), and micro-level activities (circular start-ups, circular business models). A single-level focus on CE research limits a broader understanding of transition mechanisms. The framework highlights social and environmental sustainability challenges and safe and just close-loop production patterns.

The concept of Sustainable Entrepreneurial Ecosystems (SEE) has also gained traction, defined as an interconnected group of actors in a local geographic community committed to sustainable development through supporting new sustainable ventures. This extends the understanding of EEs to explicitly integrate sustainability outcomes, often seen as a long-term entrepreneurial ecosystem. However, the configuration of elements that effectively build such ecosystems is still an area of active research.

Objectives

This paper aims to achieve the following objectives.

1) To synthesize the key elements and conceptualizations of entrepreneurial ecosystems as presented in the literature.

2) To explore the multi-level interconnections (macro-meso-micro) between start-ups and entrepreneurial ecosystems in the context of the circular economy and planetary boundaries.

3) To identify and discuss the challenges and opportunities faced by entrepreneurial ecosystems in both developed and transitional economies.

4) To highlight the contextual specificities, such as the role of political entrepreneurs and government policies, that influence EE development and sustainability in diverse economic settings.

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Data Analysis

1.1. Prevalence and Dynamics of Entrepreneurial Ecosystems

Entrepreneurial ecosystems are prevalent globally, particularly in developed countries, with many variants such as clusters, science parks, and innovation zones. Research interest in EEs has grown exponentially, especially since 2016, indicating a rapidly emerging field of study. This growth is reflected in the increasing number of publications, with an annual growth rate of 72.12% in the analyzed literature on circular economy start-ups and EEs. Regions vary substantially in the quality of their EEs and the prevalence of high-growth firms. For instance, Silicon Valley in the USA is recognized as a first-tier EE due to its hyper- competitiveness, strong university linkages, vibrant venture capital system, high technology, and well-developed knowledge infrastructure.

1.2. Key Elements and their Interdependence

The ten elements of an EE, as operationalized by Stam and van de Ven, include: formal institutions, culture, networks, physical infrastructure, finance, leadership, talent, knowledge, intermediate services, and demand. These elements are mutually interdependent; for example, education and business services are frequently correlated with other elements. A systems perspective is crucial because the overall functioning of an EE cannot be deduced from individual elements due to inherent connectivity and nonlinearity. Measures such as the Entrepreneurial Ecosystem Index (EEI) are constructed to capture this systemic nature, often by normalizing and combining values of these elements.

1.3. Multi-Level Interconnections in the Circular Economy

An integrative multi-level framework (macro-meso-micro) is essential for understanding the transition to a CE within safe and just planetary boundaries.

1.3.1 Macro-level (Public Policies, Regulations, Infrastructure): These elements create a CE- supportive environment, providing incentives and guidelines for responsible resource use and consumption. Policies influence circular supply chains, circular ecosystems, and circular start-ups by addressing social and environmental challenges, for example, by regulating synthetic chemicals or supporting biodiversity restoration.

1.3.2. Meso-level (Circular Supply Chains and Circular Ecosystems): These foster CE opportunities through collaborative public and private multi-stakeholder networks. Circular supply chains evolve through symbiotic networks and reverse supply chains, promoting waste prevention and management, and supporting biodiversity.

1.3.3. Micro-level (Circular Start-ups and Circular Business Models): Circular start-ups, often driven by non-economic motives and social altruism, adopt circular business models from inception. They foster opportunities in circular supply chains and ecosystems and drive public policy development through their innovations and solutions.

1.4. Challenges and Opportunities

Entrepreneurial ecosystems face a variety of challenges, which differ in magnitude and severity across countries.

1.4.1. Common Challenges: These include lack of capital/funding (reliance on family funds, high borrowing costs), regulatory issues and bureaucracy (multi-window clearances, red tape, policy uncertainty, high taxes), competition, lack of skilled labor/human capital, and poor collaboration/network density. The complexity of EEs and barriers to sustainability are also noted.

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1.4.2. Opportunities: EEs facilitate innovation, increased productivity, job creation, and overall economic prosperity. Opportunities are also found within the six domains of EEs, emphasizing innovation and technology. Digitalization plays a crucial role in enabling new circular business models and improving waste management.

1.5. Contextual Specificities: Developed Vs. Transitional Economies

Developed Economies: These typically have well-established EEs with strong policies, finance, and human capital. Strategies for mitigating challenges often involve strengthening EE elements, fostering collaboration or "cooperation," and identifying new opportunities.

Governments actively develop policies and support structures for high-tech firms, robust university linkages, and venture capital systems.

Entrepreneurial ecosystems (EEs) have emerged as a critical framework for understanding and fostering entrepreneurship, advocating a shift from unsustainable linear economic models to sustainable circular ones. These ecosystems are complex systems comprising interdependent factors that collectively enable productive entrepreneurial activity. The concept has garnered substantial attention from both academics and practitioners globally.

Key Elements and Frameworks of Entrepreneurial Ecosystems

Research highlights several consistent elements that form the foundation of effective EEs. Isenberg's model, for instance, identifies six core domains: policy, finance, culture, support, human capital, and markets.

Stam and van de Ven (2021) further elaborate on these, proposing ten interconnected elements as operational constructs of institutional arrangements and resource endowments. These include government and regulatory frameworks, entrepreneurship culture, networks, physical infrastructure, demand, leadership, talent (human capital/education), finance, new knowledge (R&D), and intermediate services. Another study, the StUpEco framework, also categorizes enabling factors into education and research, human resources, funding and finance, governmental interventions, and business support and connectedness. A multi-level approach is often employed, bridging macro-level explanations (public policies, regulations, infrastructure) with meso-level (circular supply chains, circular ecosystems) and micro-level components (circular start-ups, circular business models) to provide a holistic understanding of CE transitions linked to planetary boundaries.

Impact on Economic Development and Sustainability

Entrepreneurial ecosystems are widely recognized for their significant contributions to economic growth and development. They play a crucial role in job creation, with start-ups responsible for a substantial portion of new employment in countries like the U.S. and contributing significantly to national GDPs. EEs also drive innovation, accelerate institutional change, and boost productivity by introducing new products and services to the market. Beyond economic metrics, EEs are instrumental in addressing broader socio-economic challenges such as unemployment, inequality, and poverty. The promotion of a circular economy through start-ups and entrepreneurial ecosystems is seen as a direct response to grand environmental and social sustainability challenges, moving away from unsustainable linear economic approaches.

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Challenges, Opportunities, and Mitigating Strategies

Despite their prevalence and benefits, entrepreneurial ecosystems face various challenges. These can include complexity, barriers to sustainability, intense competition, lack of capital, and inadequate policies and collaboration among stakeholders. In specific contexts, such as transitional economies like Romania, additional challenges arise from the presence of "political entrepreneurs" and pervasive corruption, which can have a pronounced negative impact on the sustainability and evolution of EEs.

However, EEs also present numerous opportunities, particularly in innovation and technological development. Strategies for mitigating challenges and fostering growth include strengthening the various elements or domains of EEs, promoting robust collaboration among public and private stakeholders, and continually identifying new opportunities. Governments play a vital role in developing and implementing supportive policies and regulations that create an enabling environment for entrepreneurship, including facilitating access to finance, human resources development, and infrastructure. Simplifying financing systems and enhancing multi-stakeholder collaborations are also crucial for success.

Conclusion

In conclusion, EEs are dynamic and multifaceted systems essential for driving economic growth, innovation, and sustainable development globally. Their success hinges on the robust interplay of various elements, supported by strategic policies and strong collaborative networks, while also adapting to unique contextual challenges.

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