



Review

Academic Social Entrepreneurship: A Contemporary Reflection from Schumpeter's Economic Sociology

Hugo Pinto ^{1,2,*} , Fábio Sampaio ³, Sílvia Ferreira ^{2,3}  and Jennifer Elston ¹ 

¹ Research Centre for Tourism, Sustainability and Well-Being, Faculty of Economics & CinTurs, University of Algarve, Campus de Gambelas, 8005-139 Faro, Portugal; jnelston@ualg.pt

² CES—Centre for Social Studies, Colégio de S. Jerónimo, 3000-995 Coimbra, Portugal; smdf@fe.uc.pt

³ Faculty of Economics, University of Coimbra, 3004-512 Coimbra, Portugal; fabio.ffr.sampaio@gmail.com

* Correspondence: hpinto@ualg.pt

Abstract: Entrepreneurship has gained significant relevance in contemporary societies due to its role in generating economic and social value, including job creation, new businesses, and technological and social innovations. Scientific interest in entrepreneurship, which dates back to the 17th century, has increased since the 1990s. This field of study has evolved to encompass not only strict business creation but also impactful social initiatives. This article explores the intersection of academic and social entrepreneurship, examining factors to understand impactful initiatives through the seminal ideas presented by Joseph Schumpeter. The text offers insights and recommendations for advancing the transdisciplinary study of academic social entrepreneurship starting from an Economic Sociology perspective.

Keywords: social impact; academic entrepreneurship; social entrepreneurship; innovation; schumpeter

1. Introduction

The broad appropriation of entrepreneurship holds significant relevance in contemporary societies [1], sparking interest in various areas of public policy. It generates value for both the economy and society, resulting in the creation of new businesses, technological processes, and jobs. Entrepreneurship, a multifaceted phenomenon, attracts substantial attention from researchers across various disciplines. Sociologists and economic theorists have long acknowledged the role of entrepreneurship in driving economic growth, employment, innovation, and productivity. This is particularly evident when analyzed through the lens of economic sociology [2].

Despite studies on entrepreneurship dating back to the 17th century and authors like Joseph Schumpeter [3,4] being developers of the concept, the interest of economists and sociologists in the institutional manifestations of entrepreneurship and its role in economic development has been experiencing a sustained increase recently. The contribution of studies in the last quarter of the 20th century and first quarter of the 21st century allowed for a conceptual evolution of entrepreneurship, including more than just business creation, encompassing the generation and implementation of new ideas with potential societal impact, the so-called social entrepreneurship [5].

This paper explores the often-overlooked intersection between academic and social entrepreneurship, two phenomena that are typically treated separately. By bridging these concepts, we seek to understand how academic institutions contribute to both economic and social innovation. Drawing on Schumpeter's theory of creative destruction and his broader framework in economic sociology, this paper will highlight the role of academic entrepreneurship in addressing societal challenges and driving systemic change.

Recent policy shifts have placed an even greater emphasis on the role of higher education in promoting entrepreneurship. For example, the European Commission's Horizon Europe program provides significant funding for research and innovation, encouraging



Citation: Pinto, H.; Sampaio, F.; Ferreira, S.; Elston, J. Academic Social Entrepreneurship: A Contemporary Reflection from Schumpeter's Economic Sociology. *Businesses* **2024**, *4*, 723–737. <https://doi.org/10.3390/businesses4040040>

Academic Editor: Daniel Badulescu

Received: 11 August 2024

Revised: 31 October 2024

Accepted: 7 November 2024

Published: 19 November 2024



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

universities to engage in social entrepreneurship initiatives that address societal challenges. Similarly, in the United States, the Small Business Innovation Research (SBIR) program incentivizes universities to commercialize research, fostering stronger ties between academia and industry [6,7].

This article offers a comprehensive analysis of the intersection between academic and social entrepreneurship. Through a reflexive literature review, we will examine the key factors driving the development of impactful initiatives. Additionally, we will underscore the importance of supportive policies and institutional frameworks that create an environment conducive to academic entrepreneurship, leading to significant social impact.

2. Economic Sociology as a Lens for Studying Entrepreneurship

2.1. Economic Sociology Contribution to the Comprehension of the Economic Process

Economic sociology is a subdomain of sociology, or at the boundary of political economy. It focuses on aspects of reality that, while not strictly economic, still require analysis through economic reasoning [8]. Unlike traditional economic science, which often relies on abstract models and quantitative analysis to explain economic phenomena, economic sociology uses the lenses, methods, and methodologies of sociology to study the economy (cf. Table 1). This approach distinguishes it from mainstream economics by incorporating social, cultural, and institutional dimensions [9].

Table 1. Confronting mainstream economics with economic sociology, own elaboration inspired by the review.

	Mainstream Economics	Economic Sociology
Protagonist	The individual agent	Interplay between actors, groups, institutions
Economic action	The actor has a certain set of preferences and will choose the one that maximizes utility (rational action)	Various possible types of economic action
Choice	Rational action as the efficient use of scarce resources	The view is broader and more comprehensive
Focus	Market exchange	The economic process is embedded in an organic way within society
Objectives of analysis	Formal approaches focused on predicting behavior	Descriptive and theoretical analyses
Methodological approaches	Formal models focused on mathematics and statistical methods	A greater variety of methods, such as observation, analysis of qualitative data, among others
Intellectual inspirations	Neoclassical economics, showing a clear distinction between the study of the economy, the current economic theory, and the history of economic thought	Sociological traditions and theories to explain the economy, pluralism, and overlap with other disciplinary areas such as social studies of science or political economy

Through an interdisciplinary lens, economic sociology analyzes the interactions between the economy and the rest of society. It combines the analysis of economic interests with examining social relationships, providing a more comprehensive view of how economic behavior is embedded within social structures.

This pluralistic approach is particularly useful for studying entrepreneurship. By focusing on both academic and social entrepreneurs within their institutional contexts, economic sociology enables a deeper understanding of how innovations function within society. Schumpeter's concept of creative destruction exemplifies this, as it not only describes economic transformations but also emphasizes the societal impact of dismantling old institutions to make way for new advancements [10].

The convergence between traditional economic entrepreneurship and academic social entrepreneurship can be visualized through Schumpeter's theory of creative destruction,

as both forms contribute to the dismantling of outdated systems and the advancement of innovations (Figure 1).

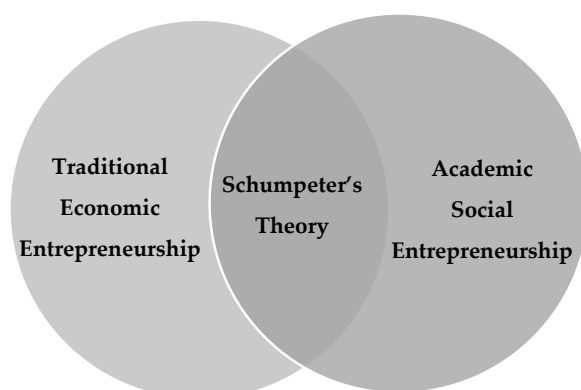


Figure 1. Convergence of traditional economic and academic social entrepreneurship under Schumpeter's economic sociology perspective, own elaboration.

This approach allows economic sociologists to explore the complex interactions between economic activities and social structures. They examine how social networks, cultural norms, and institutional arrangements influence economic behavior and outcomes [11]. This highlights the embeddedness of economic actions within the broader social context, challenging the notion of economic behavior as purely rational and self-interested [12,13].

Economic sociology does not have more than a century of existence, but its intellectual roots are identifiable in older traditions of philosophical and social thought. The most prominent names are Max Weber and Emile Durkheim [14], and also Karl Marx, Karl Polanyi and Talcott Parsons [15]. These classical sociologists, aimed to comparatively understand modern and traditional societies, observing that economic institutions varied significantly over time and space [16].

A common element in the motivation for studying the economy within sociology is the fact that social context shapes economic behavior, thus rational behavior is seen as being acquired rather than innate. Both Max Weber and Émile Durkheim viewed economic sociology as a more elaborate version of economic science, emerging from the application of sociological frameworks, variables, and explanatory models to a complex of activities concerned with the production, distribution, exchange, and consumption of scarce goods and services [17].

Max Weber considered the relationship between economic and social forces as mutually conditioning within a context that encompasses cultural, social, and motivational meaning [18]. In economic science, economists studied economic action in a pure and isolated form, as driven exclusively by economic interests.

Economic sociologists, on the other hand, studied socioeconomic action, driven not only by economic interest but also by tradition and emotions. Émile Durkheim understood sociology as the study of economic institutions: institutions related to the production of wealth (farmers, corporate organization, industrial production, mills, home production), institutions related to exchange (commercial organizations, markets, stock exchanges), and institutions related to distribution (rents, interests, wages) [19].

In the context of entrepreneurship, economic sociology offers valuable tools for understanding the social and institutional factors that facilitate or hinder entrepreneurial activities [20]. This perspective can shed light on how social networks, cultural values, and institutional supports influence the emergence and success of entrepreneurs. Moreover, it can help identify the ways in which entrepreneurial activities contribute to broader social and economic development.

2.2. Entrepreneurship as a Field of Study in Economic Sociology

Studies related to entrepreneurship date back to Richard Cantillon (1734), where the entrepreneur is seen as an agent for countries' and regions' economic and social progress [21]. The term entrepreneurship comes from the French word *entrepreneur*, initiates or undertakes a significant project or activity. It specifically refers to bold individuals who stimulate economic progress by discovering new and improved methods [22]. The conceptualization of entrepreneurship is neither easy nor obvious, and it is impossible to reach a consensus converging on a single definition [23,24]. Its conceptual complexity is reflected in attempts to approach it from conflicting perspectives [25].

In economic and management studies, entrepreneurship is the conjunction of two phenomena: profitable opportunities and the presence of entrepreneurial individuals [26]. These individuals seek to create something new [27], generating value by using existing resources differently [28]. Entrepreneurship is the process of creating and/or expanding businesses that are innovative or that arise from identified opportunities [29].

To understand the phenomenon, one must consider three components of entrepreneurship: the entrepreneurs, entrepreneurial activity, and entrepreneurship itself [30]. Entrepreneurs are individuals who seek to generate value through the creation and expansion of an economic activity by identifying and exploiting new products, processes, and/or markets. Entrepreneurial activity is the human action of seeking to generate value through the creation or expansion of economic activity, by identifying and exploiting new products, processes, or markets. Entrepreneurship is the phenomenon associated with entrepreneurial activity.

A sociological perspective on entrepreneurship analyzes the social context, process, and effects of entrepreneurial activity. Entrepreneurship can be interpreted as intentional action leading to the creation of new formal organizations, or as any effort to introduce lasting innovations in routines, technologies, organizational forms, or social institutions [31]. The sociological perspective on entrepreneurship emphasizes the influence of socio-cultural factors, as well as the characteristics of individuals, institutions, and organizations. Within a Schumpeterian framework, entrepreneurship can be defined as the ability to take initiative, seek innovative solutions, and address economic or social challenges—either for personal benefit or for the benefit of others—by establishing economic or social enterprises [32].

The interest of sociologists in the institutional manifestations of entrepreneurship and its role in economic development has been experiencing a significant increase [33]. Entrepreneurship began to be studied and addressed in the works of classic sociology [34]. Concepts related to entrepreneurship frequently appear in the sociological canon. Max Weber in *The Protestant Ethic and the Spirit of Capitalism* and Emile Durkheim's evolutionary account of the division of labor are examples of contributions to the comprehension of entrepreneurship.

According to Ruef and Lounsbury [30], there are basic aspects in the study of entrepreneurship from a sociological perspective. Sociology aims at levels of analysis beyond the entrepreneur (individual), addressing the role played by interpersonal networks, organizational structure, the population, and the institutional environment. It emphasizes the material aspects of new business formation and other symbolic dimensions, such as the culture of entrepreneurial activity. It aims to understand entrepreneurship in a diverse set of contexts, understanding how, where, why, and in which specific contexts new businesses are created.

Joseph Schumpeter is widely regarded as the first major economist to develop a comprehensive theory around entrepreneurship [13]. Schumpeter's model provides a solid foundation for building the notion of entrepreneurship. It is commonly accepted that Schumpeter was one of the economists most committed to linking Sociology and Economics, differing from most economists of his time [5]. This distinction stems from his attempt to create a place for economic sociology alongside economics, inspired by Max Weber [15].

Referring to Max Weber's notion of *Sozialökonomie*, Schumpeter discussed economic sociology considering a typified, stylized, or rational economic history. Analyzing the variety of economic motives and attitudes is a significant contribution to economic sociology, as it encompasses both economic behavior and the characteristic institutions of the examined societies' economic organization [25].

Schumpeter highlights the entrepreneur's role in economic analysis, arguing that classical and neoclassical economics often overlook the dynamic force of entrepreneurship in favor of static models [5]. He insists that understanding capitalism requires acknowledging the entrepreneur's innovative role.

Schumpeter understood the economy as a "social economy". Despite this concept emerging alongside economic science and differentiating itself from mainstream economics, Schumpeter's sociological view of the economy bridges this discipline with the social and innovative value of the economy, as well as the study of institutions within which economic behavior occurs [13].

This approach attempted to create a new, more dynamic type of economic theory with a more sociological nature, combining existing elements in new ways. This mode of thinking can and should be read sociologically [19]. In summary, Joseph Schumpeter argued that instead of isolating economic actors, entrepreneurs should be seen as dependent on their social context.

Central to Schumpeterian thought, entrepreneurship is seen as a catalyst for economic change. Firstly, Schumpeter views entrepreneurship as an effort to bring together new combinations of existing elements. Secondly, he considers the primary adversary of the entrepreneur to be resistance to change. Schumpeterian theory argues that entrepreneurship should be seen as a mechanism for generating added value through innovation, new businesses, technological processes, and employment. This is achieved through "creative destruction", a process that creates a set of social problems, which may later be resolved through economic expansion [3].

The term "creative destruction", coined by Schumpeter, encapsulates the essence of innovation as the key element in his framing of entrepreneurship. An entrepreneur, then, can be considered an agent who, by introducing new products, services, and methods to the market through innovative production processes, disrupts socio-economic patterns, thereby fostering transformation. Entrepreneurship is the central aspect to understanding economic fluctuations as it instigates the changes in the business cycles—the waves of innovation initiated by entrepreneurs cause booms and busts, disrupting the equilibrium [4].

Only after Schumpeter defined the entrepreneurial agent as central in socio-economic change, scholars began to recognize the importance of this transformative element. Innovation, according to Schumpeter, is the most crucial function of the entrepreneurial entrepreneur, who takes the initiative to change basic technological models and demand cycles, leading to effective development [35].

In recent years, digital technology has profoundly impacted the entrepreneurial landscape, giving rise to new forms of social and academic entrepreneurship. Platforms such as Kickstarter and GoFundMe have enabled social entrepreneurs to crowdfund their ventures, allowing for innovative solutions to societal challenges without relying on traditional venture capital [36,37]. Furthermore, the gig economy has redefined the nature of entrepreneurship, allowing individuals to operate as micro-entrepreneurs, offering services across a range of industries [38].

These developments not only reshape entrepreneurship but also challenge existing institutional frameworks, demonstrating Schumpeter's concept of creative destruction. They disrupt established markets and create new opportunities for innovation, thereby accelerating the convergence of social and academic entrepreneurship. As these trends continue to grow, we are witnessing the emergence of a new type of entrepreneur, one who combines economic and social objectives in innovative ways.

3. Current Overlaps for a New Type of Entrepreneur

3.1. Social Entrepreneurship and Innovation

Social entrepreneurship expands the traditional concept of entrepreneurship, drawing from a broad literature across various disciplines, combining diverse perspectives and meanings [39]. Several schools of thought have been identified in the study on social entrepreneurship, which we can relate to the definition of entrepreneurship as the creation of businesses or entrepreneurship as innovation.

The “earned income school” or “social enterprise school” was developed within the context of non-profit organizations’ practical needs for sustainability in the context of changing sources of income, mainly in the Anglo-Saxon context. Social entrepreneurship means the adoption of business and earned-income strategies by nonprofits to pursue their social mission. The “social innovation school” stresses the innovation dimension. It draws its inspiration from the Schumpeterian conception of entrepreneurship, associating it with innovation and the role of individuals and to Peter Drucker’s thesis that entrepreneurship can happen in any sector. Further contributions have emphasized the transformative role of social entrepreneurship. The third school, the “enterprising social innovation school of thought” aims at creating convergence between the two former schools by linking innovation with blending methods from business and philanthropy [40,41]. Social entrepreneurship is not defined by legal form and is said to be found in non-profit, business, or governmental sectors [42]. It is characterized by innovative activities that create social value, using a combination of resources to pursue opportunities that lead to the creation of innovative organizations or practices producing sustainable social benefits [43]. This hybrid phenomenon focuses on creating social value while ensuring profits through entrepreneurial and innovative means [44].

A fourth school of thought, developed within European scholarship, emphasizes collective entrepreneurship and new organizational forms in the social economy. This school suggests that entrepreneurship can be performed not only by individuals but also by groups or movements, focusing on the entrepreneurial function rather than the individual. It aligns with Schumpeter’s revised view that emphasizes the entrepreneurial function over the individual entrepreneur [38]. The focus shifts from the individual to the entrepreneurial function that generates innovation. This perspective also aligns with Schumpeter’s later correction of his initial emphasis on individual entrepreneurs, highlighting that what matters is the function of entrepreneurship rather than the person performing it. Social innovation plays a central role in this school, drawing on the tradition of sociology and political science to discuss innovation and social change generated by collective and public action. Over time, the concept of entrepreneurship has been applied not only to economic change but also to political (policy entrepreneurship) and institutional (institutional entrepreneurship) transformation, broadening its scope and impact [45,46].

The term “social entrepreneurship” resonates well with contemporary times, blending the passion for a social mission with the discipline of management, innovation, and determination. Social entrepreneurs view wealth as a means to an end, unlike (strict) economic entrepreneur’s measure value creation through wealth generation. Social entrepreneurs aim to create systemic change and sustainable progress. Their actions, while local, have the potential for global impact [40].

The primary mission of social entrepreneurship is to create social value, rather than profit, which drives traditional economic entrepreneurship. Whereas business entrepreneurship is about economic wealth creation, being the social wealth a by-product of economic wealth creation, social entrepreneurship is about social wealth creation, being economic wealth instrumental for the creation of social value [47]. Social entrepreneurial activity emphasizes the role of individuals and groups in changing institutions and social, addressing unmet societal needs, challenges that neither the market nor the state can fully resolve [48].

3.2. Academic Entrepreneurship

With the growing importance of knowledge production and transfer in societies, discussions about university–industry–government cooperation have intensified since the 1970s, primarily due to the short life cycle of innovations. This trend is intrinsically linked to the emergence of academic entrepreneurship [49]. Interest in entrepreneurial activities by higher education institutions has also sparked academic interest in academic entrepreneurship within the social sciences and various business and administration fields, especially management.

Changes in universities reflect policy developments focusing on the need to transfer knowledge from universities to make broader contributions to society. This includes activities such as start-ups initiated by students and alumni, patent licensing, and research contracts with established firms. Hence, there is a need for universities to become “entrepreneurial universities” [50].

An entrepreneurial university aims to produce and transfer knowledge to society, contributing to the development of its economic and social environment. It creates new standards, shapes society, and addresses unmet social needs, all while fostering economic and societal evolution. In this context, academic entrepreneurship has gained importance as a mechanism for promoting employment, social cohesion, economic regeneration, and territorial competitiveness.

The role of universities has evolved in recent years, contributing to technological development and economic and social growth [51]. The Fourth Helix has become the fundamental organizational arrangement in the interaction between the four main participants of the innovation system: university, government, industry, and society [52]. This arrangement is key to creating the “entrepreneurial university” and promoting conditions for a knowledge-based society [53].

The purpose of universities is education and research, but they should also engage in societal improvement and evolution [54]. This entrepreneurial university actively engages with society to advance economic and social material through knowledge transfer. This is a complex process that involves the transmission and exchange of knowledge from a producer to a recipient. Typically, this is associated with scientific knowledge production by universities and other public research organizations and its subsequent absorption by businesses and the industrial sector [21].

Academic entrepreneurship is viewed as a means of knowledge transfer from the university environment to society, the economy, and the market, creating economic and social value. This process has led to the emergence of new university policies and public incentives to promote an entrepreneurial culture within institutions [55].

An entrepreneurial university with a social orientation should address the emerging social needs of its surrounding communities, thereby creating socio-economic value for society. Academic entrepreneurship with a social dimension should play roles such as value creation, transformation, social innovation, and sustainability [56,57].

The concept of entrepreneurial university, and consequently academic entrepreneurship, closely aligns with Schumpeter’s concept of entrepreneurship that places innovation as the core of entrepreneurial activity. In this perspective, the university becomes the locus for creating and supporting agents capable of revolutionizing a production system, with the resulting changes driving economic and societal development. The article explores these overlaps in the following section.

While social entrepreneurship focuses on creating social value, and academic entrepreneurship is traditionally concerned with knowledge transfer and innovation to create economic value, the convergence of these two forms of entrepreneurship can be seen in initiatives that address both economic and social challenges. For example, universities that foster social ventures through incubation programs bridge the gap between these two domains, simultaneously producing knowledge and solving societal problems. This dual focus is a modern manifestation of Schumpeter’s creative destruction, as both economic and social systems are transformed by these entrepreneurial activities. Recent examples of

academic social entrepreneurship initiatives include the University of Oxford's *Social Enterprise Development Programme*, which supports the creation of ventures that tackle societal challenges such as climate change and inequality. Similarly, Stanford University's *Social Innovation Fellowship* program provides resources for students to launch socially impactful projects across diverse sectors [58,59]. In Brazil, the Technological Incubators of Popular Cooperatives and other academic social incubators developed in Brazilian universities with the support of governmental programs aim at strengthening community businesses to create income and jobs for disadvantaged populations [60]. These examples highlight how academic institutions are increasingly serving as incubators for social entrepreneurship.

However, the realization of academic social entrepreneurship faces numerous challenges. These include institutional inertia, the difficulty of balancing academic integrity with market demands, and a lack of infrastructure or resources that fully support entrepreneurial endeavors within universities [48,49,52]. Overcoming these barriers requires not only institutional change but also policy interventions aimed at aligning academic objectives with societal needs.

4. Academic Social Entrepreneurship: A Perspective Inspired by Schumpeterian Notes

Academic social entrepreneurship represents a hybrid model that incorporates the social mission with the knowledge-driven innovation typical of academic institutions. This hybrid model is increasingly exemplified by universities fostering social innovation that address critical societal issues such as healthcare, clean energy, and education. For instance, universities such as MIT and Stanford have developed programs that leverage academic research to create sustainable, socially impactful businesses.

MIT's Entrepreneurship Center has supported the creation of over 30,000 active companies, contributing over \$2 trillion to the global economy [61]. Similarly, Stanford University's Social Innovation Fellowship program provides students with the resources and mentorship needed to launch projects that address challenges such as climate change, education inequality, and healthcare access [59]. Through these programs, institutions worldwide further demonstrate the crucial role of higher education in fostering social innovation and addressing global issues [43]. These academic institutions create an ecosystem where innovation and entrepreneurship converge, aligning entrepreneurial activities with societal challenges and driving both economic and social progress [61].

Schumpeterian entrepreneurs are agents of change in the economy. They are individuals who disrupt productive normality by introducing new paradigms, whether through creative response, creative destruction, radical innovations, to production systems. By entering new markets or developing new ways of doing things, they drive economic progress [40].

Entrepreneurs have been studied as unique, exceptional individuals, a perspective posited by Schumpeter, and later revised [62]. These entrepreneurs were detached from existing conservative social orders [63,64]. This detachment allowed them to serve as bridges between different groups and sectors, particularly in areas where novelty was often seen as strange and political resistance was high [65]. Thus, the entrepreneurial process develops because people pursue and persist in the opportunities they encounter, with the entrepreneurial agent being the key element of the entire process [66].

Entrepreneurial spirit is not just about the courage or willingness to start a business. It is intricately linked to innovation serving growth, exploiting market niches imperceptible to many. This fuels economic expansion possibilities.

Schumpeter believes that innovative technologies destroy old ways and products, creating new ones simultaneously. In essence, the new product and method replace the "old product", and new production structures destroy the old ones [67]. Thus, in Schumpeter's conception, progress, and consequently entrepreneurship, is intrinsically linked to innovation, destruction, and creation. This idea is corroborated in Schumpeter's work [67] where he asserts that entrepreneurs are a driving force of economic growth by

introducing innovations to the market, challenging established companies, in a process known as “creative destruction” [68].

Schumpeter’s “The Theory of Economic Development” [67] significantly shifted the focus regarding economic growth emphasizing intrinsic economic and business factors over demand and competition ones. Schumpeterian theory posits that entrepreneurship should be seen as a mechanism generating added value for the broader economy, through new businesses, technological processes, and job creation [69].

Understanding “creative destruction” requires grasping Schumpeter’s notion of “new combinations” that culminate in entrepreneurial innovation. Development primarily involves the realization of discontinuous new productive combinations. In his work Schumpeter lists and qualifies what he considers new productive combinations [70]: the introduction of a new product or improvement in the quality of an existing one; the introduction of new production methods; the opening of a new market, i.e., a market where the specific branch of the country’s industry has not yet entered, regardless of whether that market existed before; the conquest of a new source of supply of raw materials or semi-manufactured goods, again irrespective of whether that source already exists or must be created; and the establishment of a new organization of any industry, such as creating a monopoly position or breaking up a monopoly position.

These processes may begin with micro-actors, affecting a company’s innovative activities and a macro environment involving broader institutional, political, economic, and social structures. This leads to a greater number of entrepreneurial and innovative activities [68]. Academic social entrepreneurship integrates academic and entrepreneurial activities with the explicit goal of addressing social challenges. Rooted in Schumpeter’s framework of creative destruction, this concept extends beyond economic innovation to encompass the systemic transformation of societal structures. It encapsulates how universities can generate both economic and social capital through knowledge transfer and the development of solutions to pressing societal needs. This concept includes social both as a means and an end. The following diagram illustrates how academic knowledge production leads to social innovation, creating both economic and social value, ultimately contributing to systemic transformation (Figure 2).

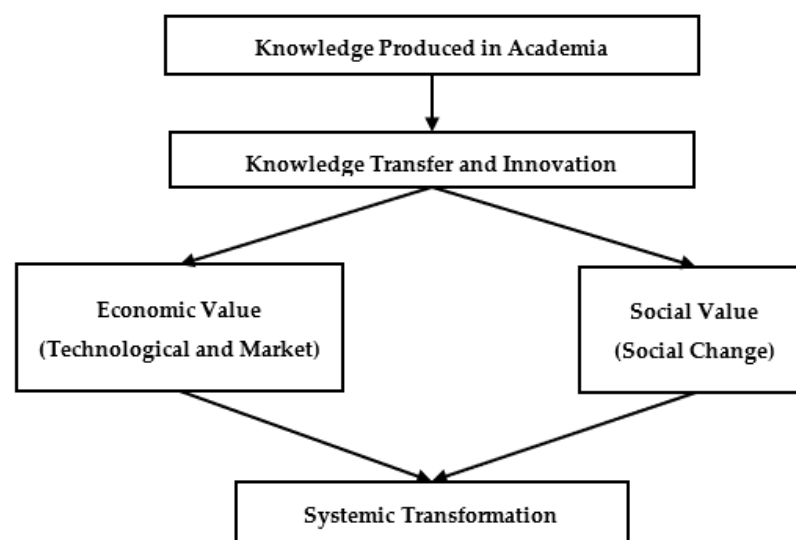


Figure 2. Academic social entrepreneurship towards Systemic Transformation, own elaboration.

Schumpeter’s theory of creative destruction extends beyond economic systems to encompass social institutions [68]. In academic settings, this is particularly evident as traditional hierarchies and modes of knowledge production are disrupted by the rise of entrepreneurial initiatives [49]. The increasing collaboration between academia, industry, government and society reflects this social creative destruction, as it challenges the tradi-

tional role of universities as isolated producers of knowledge and transforms them into active participants in societal change [52].

Despite its potential, academic social entrepreneurship faces several challenges. Universities may encounter resistance when trying to balance academic integrity with market-driven entrepreneurship [49]. Additionally, securing funding for ventures that prioritize social impact over profitability can be difficult, especially in competitive industries [52]. Institutional inertia and a lack of infrastructure that supports entrepreneurial ventures within academia further complicate efforts to create sustainable academic social initiatives [54]. To overcome these barriers, policy interventions and institutional support are needed to align academic objectives with societal needs [71].

Academic entrepreneurship is a collective (social) process, with certain values implicit in the notion of ‘social change’, such as the right to economic progress, health, and well-being [72]. It is focused on coping with social challenges and answering existing needs. Social innovation fits into this definition, acting as a bridge between the goals of generating economic value and social value. It involves an idea that deliberately attempts to better satisfy explicit or latent social needs and problems, resulting in new or improved capabilities, and in the transformation of social and power relations, aiming at social change and the establishment of new social practices that positively affect the lives of individuals [73].

Social innovation itself can take various forms with transformative potential to enhance social well-being, productivity, and economic performance [74]. The academic social entrepreneurship research agenda may be structured in five key elements inspired by Swedberg’s discussion of Schumpeter’s entrepreneurship model [13] and the meanings of social entrepreneurship (Figure 3).

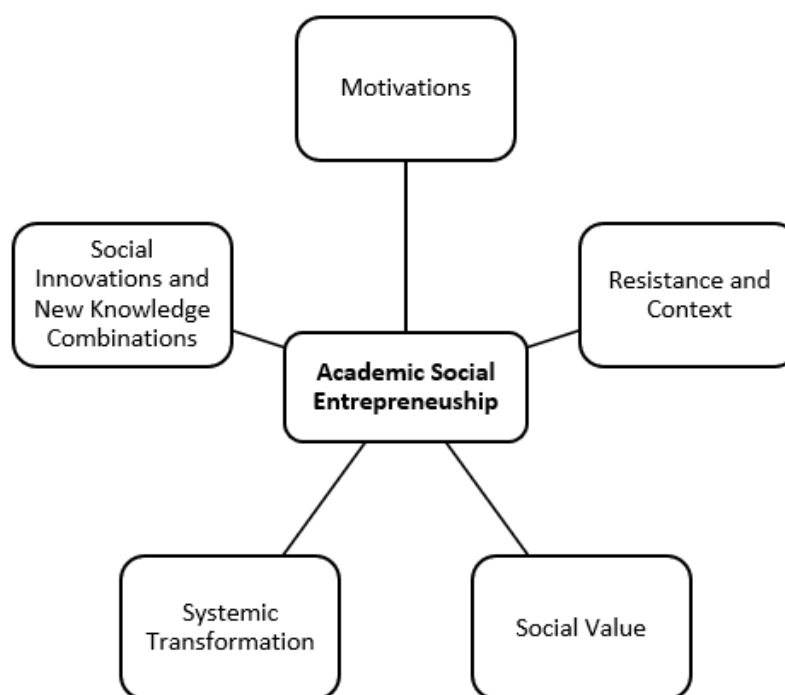


Figure 3. Key elements to understand the academic social entrepreneurship, own elaboration.

1. **Motivations**—Academic social entrepreneurs have complex motivations centered on a sense of mission and social value to create social change. In academic work, the entrepreneurial function is performed by the individual researcher or the research team and by other social actors with a stake in the social challenge.
2. **Social Innovations and New Knowledge Combinations**—academic social entrepreneurs combine their scientific knowledge and technical skills to address pressing challenges for society introducing combination of new products, methods, markets, sources of raw materials, forms of organization, finance and legal forms. On debates on the

concept of social innovation this is often expressed as both a product and a process that transforms social and power relations.

3. **Resistance and Context**—Academic social entrepreneurs also face resistance to their endeavors, stemming from habits, traditions, routines, institutions, and social orders, both within academic institutions and the external organizations they are trying to affect. This resistance, often tied to institutional inertia, can be a major barrier to implementing innovations.
4. **Social Value**—Social change at local, national, and international levels often involves creating new organizations, institutions, and/or laws that help achieve innovation and economic and social value. Whereas economic value is often expressed in profit, social value is related, ultimately, to social change.
5. **Systemic transformation**—The parallel to the concept of creative destruction within a social innovation framework is the idea of systemic transformation, in the sense that social innovations have an effect in changing social structures and therefore contribute to societal evolution.

The convergence of social and academic entrepreneurship offers unique synergies. By leveraging the resources, research, and innovation capacities of universities, social entrepreneurs can scale up their impact and develop more sustainable solutions. In turn, academic institutions can benefit from real-world applications of their research, creating a feedback loop that accelerates both economic and social innovation. These synergies allow universities to serve as engines of both economic growth and systemic transformation.

In summary, Schumpeter's perspective aligns well with the emphasis on academic social entrepreneurship. It underscores the importance of a Schumpeterian foundation in contemporary business research, highlighting how academic entrepreneurial processes rooted in innovation can and should incorporate a social dimension. This approach not only facilitates understanding business cycles but also the entrepreneurial discovery process that addresses societal challenges.

5. Conclusions

Crises and emerging challenges often require innovative solutions to social problems. One approach is to expand the business landscape through social enterprises, which can address these issues while also contributing to economic growth. Another solution is to effectively apply scientific knowledge produced by research organizations, harnessing innovative perspectives such as social innovation.

Entrepreneurship, as a broad concept, captures significant interest across various academic disciplines—and sectors of society. Discussing entrepreneurship inevitably brings up the role of the entrepreneur—a concept that has gained popularity, especially in relation to profit-driven activities and organizations, drawing on Schumpeter's emphasis on innovation.

According to Schumpeter, entrepreneurship not only drives economic dynamism within societies but also nurtures social change. This dual impact, through processes like 'creative destruction,' directly and indirectly enhances well-being, underscoring its transformative role in modern economies. From a Schumpeterian perspective, entrepreneurship is intricately linked to innovation and knowledge.

Therefore, understanding entrepreneurship requires balancing individualistic views with structural perspectives. Entrepreneurs leverage personal, collective, organizational, and institutional skills, navigating social constraints to pursue opportunities through innovative and proactive behavior.

The recent pandemic has highlighted the resilience of social and academic entrepreneurship, as universities and social entrepreneurs have swiftly adapted to address public health challenges and issues related to the digital divide [75,76]. This aligns with Schumpeter's concept of creative destruction, as crises often catalyze the dismantling of outdated systems and the development of innovative solutions. For instance, numerous universities launched online education platforms and health-tech innovations in response to the pan-

demic, highlighting the capacity for academic institutions to drive both economic and social progress.

The convergence of social and academic entrepreneurship represents a powerful mechanism for generating long-term societal benefits. By integrating entrepreneurial activities with academic knowledge, universities can serve as engines of both economic innovation and social transformation. Future research should focus on the development of supportive policies and institutional frameworks that enable this dual focus, ensuring that academic entrepreneurship contributes to solving the pressing societal challenges of our time.

From a Schumpeterian perspective, academic entrepreneurship aimed at creating social value aligns closely with the concept of social innovation. The knowledge, science, and technology produced by universities should ideally lead to social innovations that address societal challenges, thereby creating both economic and social value. Academic ventures driven by social innovation can focus on explicit or latent social objectives. These ventures aim to solve social problems while ensuring profitability through entrepreneurial and innovative methods.

The surge in entrepreneurship studies underscores the importance of entrepreneurship to society. Schumpeter's theory positions the entrepreneur at the center of socio-economic transformation. However, this focus on the individual can sometimes overlook the broader social context in which entrepreneurship occurs. It is crucial to recognize that entrepreneurial success is not solely the result of individual talent but is also influenced by social relationships and community support.

The interplay between entrepreneurship and social innovation is particularly relevant today, given the rise of academic entrepreneurship initiatives focused on social impact. This relationship encompasses both supply and demand perspectives. The first approach examines the motivations and profiles of academic entrepreneurs engaged in social innovation, while the second approach explores the contextual factors and networks that support these initiatives. Bringing these perspectives together will assist future research in understanding the formation and dynamics of social innovation and academic social entrepreneurship.

Author Contributions: Conceptualization, H.P., F.S. and S.F.; methodology, H.P., F.S. and S.F.; investigation, H.P., F.S., S.F. and J.E.; writing—original draft preparation, F.S. and H.P.; writing—review and editing, H.P., S.F. and J.E.; supervision, H.P. and S.F.; project administration, H.P.; funding acquisition, H.P., F.S. and S.F.; visualization—H.P. and J.E. All authors have read and agreed to the published version of the manuscript.

Funding: S.F., H.P. and F.S. are supported by the FCT—Fundação para a Ciência e a Tecnologia (UIDP/50012/2020). H.P. is supported by the FCT (UIDB/04020/2020 and CEEC—INST/00052/2021/CP2792/CT0001). F.S. is supported by the FCT (2020.09517.BD). J.E. is supported by Sustainable Horizons (HORIZON) with the Grant agreement ID: 101071300, DOI: 10.3030/101071300. The APC was waived by MDPI.

Data Availability Statement: No new data were created or analyzed in this study. Data sharing is not applicable to this article.

Acknowledgments: The authors appreciate the valuable contributions and insightful discussions that arose from the presentation of this paper at the EcPol—Portuguese Political Economy and APS—Portuguese Sociology Association Conferences held in 2021.

Conflicts of Interest: The authors declare no conflicts of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

References

1. Anders, L.; Stevenson, L. *Entrepreneurship Policy—Theory and Practices*; Springer: Boston, MA, USA, 2005.
2. Nadim, A.; Hoffmann, A.N. *A Framework for Addressing and Measuring Entrepreneurship*; OECD Statistics—Entrepreneurship Indicators Steering Group: Paris, France, 2008.
3. Schumpeter, J.A. *History of Economic Analysis*; Allen and Unwin: London, UK, 1954.
4. Schumpeter, J.A. *Business Cycles: A Theoretical, Historical, and Statistical Analysis of the Capitalist Process*; McGraw-Hill: New York, NY, USA, 1939; Volumes 1–2.
5. Swedberg, R. *Joseph A. Schumpeter: His Life and Work*; John Wiley & Sons: New York, NY, USA, 2013.
6. European Commission. Horizon Europe: The EU Research and Innovation Programme (2021–2027). Horizon Europe the EU’s Funding Programme for Research and Innovation. 2020. Available online: https://commission.europa.eu/funding-tenders/find-funding/eu-funding-programmes/horizon-europe_en (accessed on 14 October 2024).
7. National Science Foundation. SBIR: Small Business Innovation Research Program. NSF 19-554: Small Business Innovation Research Program Phase I. 2019. Available online: <https://new.nsf.gov/funding/opportunities/small-business-innovation-research-program-phase-i/505233/nsf19-554/solicitation> (accessed on 14 October 2024).
8. Graça, J. Afinal, o que é mesmo a Nova Sociologia Económica? *Rev. Crít. Cienc. Soc.* **2005**, *73*, 111–129. [CrossRef]
9. Swedberg, R. Major traditions of economic sociology. *Annu. Rev. Sociol.* **1991**, *17*, 251–276. [CrossRef]
10. Cordeiro, C.M.; Voldnes, G. An Integrated Economic Sociology Approach to Market-as-Network: The Example of a Shared Business Environment Between Norway and China. *J. East-West Bus.* **2021**, *27*, 357–381. [CrossRef]
11. Granovetter, M. Economic action and social structure: The problem of embeddedness. *Am. J. Sociol.* **1985**, *91*, 481–510. [CrossRef]
12. Martinelli, A.; Smelser, N.J. Economic sociology: Historical threads and analytic issues. *Curr. Sociol.* **1990**, *38*, 1–49. [CrossRef]
13. Swedberg, R. Schumpeter’s full model of entrepreneurship: Economic, non-economic and social entrepreneurship. In *An Introduction to Social Entrepreneurship: Voices, Preconditions, Contexts*; Elgar: Cheltenham, UK, 2009; pp. 77–106.
14. Steiner, P. *Economic Sociology*; Taylor & Francis: Routledge Historical Resources: History of Economic Thought. 2017. Available online: <https://www.routledgehistoricalresources.com/economic-thought/essays/economic-sociology> (accessed on 15 October 2024).
15. Smelser, N.; Swedberg, R. Introducing economic sociology. In *The Handbook of Economic Sociology*; Princeton University Press: Princeton, NJ, USA; Oxford, UK, 2005; pp. 3–25.
16. Dobbin, F. Comparative and Historical Approaches to Economic Sociology. In *The Handbook of Economic Sociology*; Princeton University Press: Princeton, NJ, USA; Oxford, UK, 2005; pp. 26–48.
17. Weber, M. *The Protestant Ethic and the Spirit of Capitalism*; Parsons, T., Translator; Allen & Unwin: London, UK, 1930.
18. Durkheim, E. *De la Division du Travail Social [The Division of Labor in Society]*; Alcan: Paris, France, 1893.
19. Knudsen, T.; Swedberg, R. Capitalist entrepreneurship: Making profit through the unmaking of economic orders. *Capital. Soc.* **2009**, *4*. [CrossRef]
20. Swedberg, R. Social entrepreneurship: The view of the young Schumpeter. In *Entrepreneurship as Social Change*; 2006; pp. 21–34. Available online: <https://www.elgaronline.com/edcollchap/9781845423667.00010.xml> (accessed on 15 October 2024).
21. Pinto, H.; Cruz Rita, A.; de Almeida, H. Academic entrepreneurship and knowledge transfer networks: Translation process and boundary organizations. In *Handbook of Research on Entrepreneurial Success and Its Impact on Regional Development*; Information Science Reference: Hershey PA, USA, 2015; pp. 315–343.
22. Link, A.N.; Siegel, D.S. *Innovation, Entrepreneurship, and Technological Change*; Oxford University Press: Oxford, UK, 2007.
23. Toma, S.; Grigore, A.; Marinescu, P. Economic development and entrepreneurship. *Procedia Econ. Financ.* **2014**, *8*, 436–443. [CrossRef]
24. Gartner, W. Is there an elephant in entrepreneurship? Blind assumptions in theory development. *Entrep. Theory Pract.* **2001**, *25*, 27–39. [CrossRef]
25. Ebner, A. Entrepreneurship and economic development from classical political economy to economic sociology. *J. Econ. Stud.* **2005**, *32*, 256–274. [CrossRef]
26. Shane, S.; Venkataraman, S. The promise of entrepreneurship as a field of research. *Acad. Manag. Rev.* **2000**, *25*, 217–226. [CrossRef]
27. Dodd, S.; Anderson, A.; Jack, S. “Let them not make me a stone”—Repositioning entrepreneurship. *J. Small Bus. Manag.* **2023**, *61*, 1842–1870. [CrossRef]
28. Hisrich, R.; Peters, M.; Shepherd, D. *Entrepreneurship*, 6th ed.; McGraw-Hill: New York, NY, USA, 2005.
29. Sarkar, S. *Empreendedorismo e Inovação*; Escolar Editora: Lisbon, Portugal, 2007.
30. Stoica, O.; Roman, A.; Rusu, V.D. The nexus between entrepreneurship and economic growth: A comparative analysis on groups of countries. *Sustainability* **2020**, *12*, 1186. [CrossRef]
31. Ruef, M.; Lounsbury, M. Introduction: The sociology of entrepreneurship. *Res. Sociol. Organ.* **2007**, *25*, 1–29.
32. Santiago, E.G. Vertentes teóricas sobre empreendedorismo. *Rev. Cienc. Soc.* **2009**, *40*, 87–103.
33. Swedberg, R. The social science view of entrepreneurship: Introduction and practical applications. In *Entrepreneurship: The Social Science View*; Oxford University Press: Oxford, UK, 2000; pp. 7–44.
34. Thurik, A.R.; Audretsch, D.B.; Block, J.H.; Burke, A.; Carree, M.A.; Dejardin, M.; Rietveld, C.A.; Sanders, M.; Stephan, U.; Wiklund, J. The impact of entrepreneurship research on other academic fields. *Small Bus. Econ.* **2024**, *62*, 727–751. [CrossRef]
35. Reynolds, P. Sociology and entrepreneurship: Concepts and contributions. *Entrep. Theory Pract.* **1992**, *16*, 47–70. [CrossRef]
36. Barth, F. *The Role of the Entrepreneur in Social Change in Northern Norway*; Universitetsforlaget: Oslo, Norway, 1963.

37. Sundararajan, A. *The Sharing Economy: The End of Employment and the Rise of Crowd-Based Capitalism*; MIT Press: Cambridge, MA, USA, 2016.
38. Mollick, E. The dynamics of crowdfunding: An exploratory study. *J. Bus. Venturing* **2014**, *29*, 1–16. [[CrossRef](#)]
39. Defourny, J.; Nyssens, M. Conceptions of Social Enterprise and Social Entrepreneurship in Europe and the United States: Convergences and Divergences. *J. Soc. Entrep.* **2010**, *1*, 32–53.
40. Dees, J. *The Meanings of Social Entrepreneurship, Reformatted and Revised Version*; Center for the Advancement of Social Entrepreneurship: Durham, NC, USA, 2001; pp. 1–5.
41. Ziegler, R. Introduction: Voices, preconditions, contexts. In *An Introduction to Social Entrepreneurship: Voices, Preconditions, Contexts*; Ziegler, R., Ed.; Edward Elgar Publishing Limited: Northampton, MA, USA, 2009; pp. 1–18.
42. Dees, J.G.; Anderson, B.B. Framing a Theory of Social Entrepreneurship: Building on Two Schools of Practice and Thought. In *Research on Social Entrepreneurship: Understanding and Contributing to an Emerging Field*; Mosher-Williams, R., Ed.; ARNOVA Occasional Paper Series; ARNOVA: Washington, DC, USA, 2006; Volume 1, pp. 39–66.
43. Roper, J.; Cheney, G. The meanings of social entrepreneurship today. *Corp. Gov.* **2005**, *5*, 95–104. [[CrossRef](#)]
44. Saebi, T.; Foss, N.J.; Linder, S. Social entrepreneurship research: Past achievements and future promises. *J. Manag.* **2019**, *45*, 70–95. [[CrossRef](#)]
45. Chell, E. Social enterprise and entrepreneurship: Towards a convergent theory of the entrepreneurial process. *Int. Small Bus. J.* **2007**, *25*, 5–26. [[CrossRef](#)]
46. Aldrich, H.E. Entrepreneurship. In *The Handbook of Economic Sociology*, 2nd ed.; Smelser, N.J., Swedberg, R., Eds.; Princeton University Press: Princeton, NJ, USA, 2005; pp. 451–477.
47. Godin, B. *Social Innovation: Utopias of Innovation from c. 1830 to the Present*; Working Paper; Project on the Intellectual History of Innovation: Montreal, QC, Canada, 2012.
48. Mair, J.; Martí, I. Social entrepreneurship research: A source of explanation, prediction, and delight. *J. World Bus.* **2006**, *41*, 36–44. [[CrossRef](#)]
49. Siegel, D.; Wright, M. Academic entrepreneurship: Time for a rethink? *Enterp. Res. Cent.* **2015**, *32*, 1–39. [[CrossRef](#)]
50. Etzkowitz, H. Incubation of incubators: Innovation as a triple helix of university. *Sci. Public Policy* **2002**, *29*, 115–128. [[CrossRef](#)]
51. Klofsten, M.; Jones-Evans, D. Comparing academic entrepreneurship in Europe—The case of Sweden and Ireland. *Small Bus. Econ.* **2000**, *14*, 299–309. [[CrossRef](#)]
52. Carayannis, E.; Campbell, D. Triple Helix, Quadruple Helix and Quintuple Helix and how do knowledge, innovation and the environment relate to each other? A proposed framework for a trans-disciplinary analysis of sustainable development and social ecology. *Int. J. Soc. Ecol. Sustain. Dev.* **2010**, *1*, 41–69. [[CrossRef](#)]
53. Etzkowitz, H.; Leydesdorff, L. The dynamics of innovation: From National Systems and “Mode 2” to a Triple Helix of university-industry-government relations. *Res. Policy* **2000**, *29*, 109–123. [[CrossRef](#)]
54. Cantaragiu, R. Towards a conceptual delimitation of academic entrepreneurship. *Manag. Mark. Chall. Knowl. Soc.* **2012**, *7*, 683–700.
55. Etzkowitz, H.; Klofsten, M. The innovating region: Toward a theory of knowledge-based regional development. *R&D Manag.* **2005**, *35*, 243–255.
56. Cajaiba-Santana, G. Social innovation: Moving the field forward. A conceptual framework. *Technol. Forecast. Soc. Chang.* **2014**, *82*, 42–51. [[CrossRef](#)]
57. Kamaludin, M.F.; Xavier, J.A.; Amin, M. Social entrepreneurship and sustainability: A conceptual framework. *J. Soc. Entrep.* **2024**, *15*, 26–49. [[CrossRef](#)]
58. Oxford University Innovation. Social Enterprise Development Programme. Oxford University Innovation Annual Report. 2021. Available online: <https://innovation.ox.ac.uk/about/social-ventures/funding-social-enterprise/> (accessed on 15 October 2024).
59. Stanford Center for Social Innovation. Social Innovation Fellowship. Stanford Graduate School of Business. 2020. Available online: <https://www.gsb.stanford.edu/experience/about/centers-institutes/csi> (accessed on 15 October 2024).
60. Leca, B.; Gond, J.P.; Barin Cruz, L. Building ‘Critical Performativity Engines’ for Deprived Communities: The Construction of Popular Cooperative Incubators in Brazil. *Organization* **2014**, *21*, 683–712. [[CrossRef](#)]
61. Roberts, E.B.; Eesley, C.E. *Entrepreneurial Impact: The Role of MIT*; Kauffman Foundation: Kansas City, MO, USA, 2009.
62. Collins, R. Weber’s Last Theory of Capitalism: A Systematization. *Am. Sociol. Rev.* **1980**, *45*, 25–42. [[CrossRef](#)]
63. Hwang, H.; Powell, W. Institutions and entrepreneurship. In *Handbook of Entrepreneurship Research*; Springer: Boston, MA, USA, 2005; pp. 201–232. [[CrossRef](#)]
64. Carland, J.; Boulton, F.; Carland, J. Differentiating entrepreneurs from small business owners: A conceptualization. *Acad. Manag. Rev.* **1984**, *9*, 354–359. [[CrossRef](#)]
65. Schumpeter, J.A. Entrepreneur. In *International Encyclopedia of the Social Sciences*; Sills, D.L., Ed.; Collier Macmillan Press: London, UK, 1968; pp. 87–94.
66. Gieure, C.; del Mar Benavides-Espinosa, M.; Roig-Dobón, S. The Entrepreneurial Process: The Link Between Intentions and Behavior. *J. Bus. Res.* **2020**, *112*, 541–548. [[CrossRef](#)]
67. Schumpeter, J.A. *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*; Harvard University Press: Cambridge, MA, USA, 1934.
68. Swedberg, R.; Schumpeter, J.A. *The Economics and Sociology of Capitalism*; Princeton University Press: Princeton, NJ, USA, 2020.

69. Harper, D.A. 'New combinations' in Schumpeter's economics: The lineage of a concept. *Hist. Econ. Rev.* **2020**, *75*, 22–30. [[CrossRef](#)]
70. Schumpeter, J.A. *Capitalism, Socialism and Democracy*; Harper & Brothers: New York, NY, USA, 1942.
71. Domínguez-Gómez, J.A.; Pinto, H.; González-Gómez, T. The social role of the university today: From institutional prestige to ethical positioning. In *Universities and Entrepreneurship: Meeting the Educational and Social Challenges*; Emerald Publishing Limited: Bradford, UK, 2021; pp. 167–182.
72. Neves, S.; Brito, C. Academic entrepreneurship intentions: A systematic literature review. *J. Manag. Dev.* **2020**, *39*, 645–704. [[CrossRef](#)]
73. Pinto, H.; Nogueira, C.; Guerreiro, J.A.; Sampaio, F. Social Innovation and the Role of the State: Learning from the Portuguese Experience on Multi-Level Interactions. *World* **2021**, *2*, 62–80. [[CrossRef](#)]
74. Pel, B.; Haxeltine, A.; Avelino, F.; Dumitru, A.; Kemp, R.; Bauler, T.; Kunze, I.; Dorland, J.; Wittmayer, J.; Jørgensen, M.S. Towards a theory of transformative social innovation: A relational framework and 12 propositions. *Res. Policy* **2020**, *49*, 104080. [[CrossRef](#)]
75. Ratten, V. Coronavirus (COVID-19) and entrepreneurship: Changing life and work landscape. *J. Small Bus. Entrep.* **2020**, *32*, 503–516. [[CrossRef](#)]
76. Whitelaw, S.; Mamas, M.A.; Topol, E.; Van Spall, H.G.C. Applications of digital technology in COVID-19 pandemic planning and response. *Lancet Digit. Health* **2020**, *2*, 435–440. [[CrossRef](#)]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.