Sustainability and Academic Entrepreneurship:

A multiple case study of Brazilian University incubated Startups

Innovation and entrepreneurship are critical drivers of sustainable development, particularly in the context of university startup ecosystems where entrepreneurs shape society, environment and the market (Schaltegger & Wagner, 2011). As global challenges such as climate change, social inequality, and economic instability intensify, the role of entrepreneurial ecosystems in fostering sustainable innovation has become a key area of academic inquiry where universities also play a central role (Neck et al., 2004, Cohen, 2006; Spigel, 2015, Miller & Acs, 2017). Part of those entrepreneurial ecosystems are business incubators (BI) and accelerators that have steadily embraced sustainable development as a central goal (Fichter and Tiemann, 2018; Klofsten and Bienkowska, 2021; Karahan et al. 2022). Some of those BI and accelerators find their home in universities or in hybrid academic structures that connect them directly to academia and research.

As startups embody and serve as a countable means of entrepreneurship, this study focuses on startups that are incubated in university BIs. Therefore for the purpose of this study we define and we use the terminology university startups, to include all those startups that are connected to the university infrastructures in different ways. For example this includes any scheme of a spin-off or of an academic affiliation of the founders or simply participation of the founders in the university BI.

University startups are hubs of knowledge-intensive entrepreneurship. They emerge as a vital component of the entrepreneurial landscape, given their access to cutting-edge research, highly skilled human capital, and institutional support structures (Miller & Acs, 2017).

This study investigates the preliminary and wished impact of academic entrepreneurship on sustainable development by analyzing 25 Brazilian university startups. While such startups can serve as catalysts for economic growth, do they also address pressing environmental and social issues through novel business models and through their technological advancements? The extent to which these startups integrate sustainability into their core strategies remains an open question that this study explores.

While university startups are uniquely positioned to develop solutions for sustainable challenges, from clean energy technologies to circular economy business models, still

their ability to scale and sustain these innovations depends heavily on external factors, such as funding availability, regulatory frameworks, and industry collaborations. These and more valuable findings are presented in this paper from the primary findings of the interviews.

Using a multiple case study approach, this study examines how university startups navigate the intersection of innovation, market demands, and environmental responsibility. Through structured interviews and secondary data analysis, this research explores the business models, the value propositions, and the strategies for aligning with the United Nations' Sustainable Development Goals (SDGs) (UN, 2015) from 25 university startups in Rio de Janeiro and São Paulo. Additionally, it assesses the role of entrepreneurial ecosystems—including incubators, universities, investors, and policymakers—in supporting sustainable innovation. The 25 interviews are conducted with the founder(s) each time of each university startup. Furthermore, for the purpose of triangulating the data, 5 more interviews are conducted with the 5 different incubator managers from the university incubators where the startups came from.

Schaltegger and Wagner (2011) define sustainable entrepreneurship as the realization of sustainability innovations aimed at the mass market and offering benefits to the larger part of society. Despite the growing emphasis on sustainability-oriented entrepreneurship and keeping in the background the idea of an entrepreneurial ecosystem, several academic debates persist. How do resource constraints affect the ability of startups to implement sustainable practices, especially in the environmental dimension (York & Venkataraman, 2010)? To what extent do universities (and their incubators) provide the necessary support for sustainability-driven ventures in the context of a research university entrepreneurial ecosystem (Miller & Acs, 2017)? How can impact measurement frameworks be standardized to assess the economic, social, and environmental contributions of startups (Stubbs & Cocklin, 2008)? Furthermore, the role of government policies and financial incentives in shaping sustainable entrepreneurship remains a contested area, with scholars debating the effectiveness of various regulatory approaches (Meek et al., 2010). Our paper study takes into account all the above and investigates answers for the case of Brazilian entrepreneurs that have the potential to introduce new technologies, business models and market mechanisms that address global challenges while fostering economic development and resilience in a local level. Afterall, economic development is a result of complex entrepreneurial processes (Cohen, 2006).

Diving deeper on the role of universities and their business incubators (BI) on sustainability, this paper examines universities and their BIs as part of the broader entrepreneurial ecosystem. The entrepreneurial ecosystems consist of interconnected actors such as universities, investors, policymakers, and support institutions, and play a

crucial role in fostering sustainable startups (Spigel, 2017). These ecosystems provide the necessary infrastructure, mentorship, and funding opportunities that enable startups to thrive. In particular, university BIs and accelerators serve as key facilitators of entrepreneurial activity, offering tailored support to university startups that seek to balance profit motives with sustainability goals. In specific, consultation, courses, mentoring, trainings, events and much more are organised by the BIs that want to also strengthen bonds between the incubated entrepreneurs.

Furthermore, this paper also discusses the challenges and barriers that university startups face on their road to sustainability. Despite the opportunities presented by sustainable entrepreneurship, university startups often face significant barriers in integrating sustainability into their core business strategies. Based on the primary data collected through the interviews of this study, the initial challenge is access to financing. Traditional venture capital investors typically prioritize high-growth, high-return ventures, which may not align with the longer time horizons and complex impact metrics associated with sustainability-oriented startups. This funding gap necessitates alternative financing mechanisms, such as impact investing, public-private partnerships, and grants from development agencies.

Another major barrier is the regulatory environment. While certain policies and incentives promote sustainable business practices, inconsistent regulations, bureaucratic hurdles, expensive certifications and taxes that seem to be gigantic, can all prohibit sustainable innovation from unfolding. Entrepreneurs must navigate complex compliance requirements, which can be particularly burdensome and costly for early-stage ventures with limited resources. Streamlining regulatory processes and providing targeted incentives for sustainability-driven startups could significantly enhance their ability to scale and generate impact.

Additionally, a key area of ongoing academic debate that we also touch upon, is the measurement of sustainability impact. Unlike traditional financial performance metrics, sustainability impact assessment involves evaluating social and environmental outcomes, which are often qualitative and context-dependent (Stubbs & Cocklin, 2008). Scholars have proposed various frameworks, such as the Triple Bottom Line (People, Planet, Profit) and ESG (Environmental, Social, Governance) indicators, to standardize impact measurement. However, widespread adoption of these frameworks remains limited due to methodological challenges and varying stakeholder expectations (Schaltegger & Wagner, 2011).

As the field of sustainable entrepreneurship continues to evolve, this research contributes to the broader discourse by highlighting the motivations, challenges, and strategic decisions of university startups operating within a sustainability framework. It

underscores the need for stronger institutional support, multi-stakeholder collaboration, and policy interventions to enhance the role of academic entrepreneurship in driving long-term sustainable development. By addressing these open academic questions, this study aims to advance theoretical and practical insights into the evolving landscape of sustainable innovation and entrepreneurial ecosystems.

For theory, our research advances the literature on understanding sustainability and its dynamics on university startups, highlighting the case of Brazil. We offer a framework strategy that centers sustainability and connects its components together which affect university startups: motivations, responsibilities, barriers, enablers, stakeholders, and measurements are all included in our contribution. The fundamental drivers of sustainable entrepreneurship are being set for the context of academic entrepreneurship in Brazil.

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