


Chapter 10

Unveiling the Impact of Smart Cities on Green Digital Entrepreneurship: An Empirical Analysis of 175 Cities Worldwide

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ABSTRACT

The development of green digital entrepreneurship has gained significant importance in smart cities around the globe. These ventures, which integrate digital technologies with sustainable practices, thrive in specific contextual environments that influence their emergence and growth. To examine this dynamic, we conducted a quantitative analysis of the relationship between smart city development and performance of green digital entrepreneurship ecosystems. Using a Negative Binomial Model and Poisson Regression with Pseudo Maximum Likelihood, our findings reveal a positive and statistically significant association between smart city development and green digital entrepreneurship ecosystem performance. Additionally, our analysis indicates a first-order autoregressive effect on the performance of these ecosystems. Based on these insights, we offer recommendations to policymakers, scholars, and practitioners to better understand and foster the growth of green digital entrepreneurship.

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INTRODUCTION

The development of green digital entrepreneurship is becoming increasingly relevant in smart cities (Dana et al., 2022; Gorelova et al., 2021). This trend not only reflects an increased focus on sustainability and technology, but is also in line with the Sustainable Development Goals (SDGs) set out in the United Nations Agenda 2030 (Avelar et al., 2024; Kashef et al., 2021; Sharifi et al., 2024). The growing attention of scientific and political communities and regional decision makers towards sustainability studies confirms the need for businesses to redefine urban needs (Ferraris et al., 2020; Son et al., 2023).

The emergence of green digital entrepreneurship in smart cities is a growing trend (Mitra et al., 2023; Zheng et al., 2020). Smart cities, particularly those with digital orientation, play a crucial role in supporting entrepreneurship by creating an enabling environment for the growth of green digital enterprises (Manjon et al., 2022). These innovations not only seek environmentally friendly solutions, but also adopt practices that contribute to a sustainable future. Through a combination of advanced infrastructure, supportive policies, collaborative ecosystems, market opportunities, and the availability of data-driven information, smart cities promote the development of green entrepreneurship (Bibri, 2021, 2023).

While previous research has emphasized the importance of advanced technology—such as high-speed internet, Internet of Things (IoT) devices, artificial intelligence (AI), and data analytics tools—as catalysts for digital solutions, the literature is still in its infancy regarding how entrepreneurs utilize these technological resources to innovate and develop sustainability-oriented solutions (Avelar et al., 2024; Hernández et al., 2024; Tang et al., 2023). Additionally, there is a scarcity of literature addressing the contextual determinants of green digital entrepreneurship (George et al., 2021), particularly in understanding the factors that promote or hinder the emergence of these business ventures. Our limited knowledge of these factors hampers our ability to develop tailored public policies that facilitate the emergence of green digital ventures, as well as to formulate strategic plans for their growth.

This chapter addresses the pressing need to understand the determinants of green sustainable entrepreneurship, offering valuable insights into city-level factors that drive this entrepreneurial form. We focus on the following question: *What effect does smart city development have on the dynamism of green digital entrepreneurship ecosystems?* To answer this, we analyze green digital entrepreneurship across 175 cities globally. Our findings indicate that cities with a heightened level of development exhibit increased dynamism within their green entrepreneurship ecosystems. Furthermore, our empirical design, which examines the impact of venture capital on these ecosystems, reveals autoregressive trends in the data. This suggests that ecosystems with established entrepreneurial activity are more likely to attract ad-

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