2

Jump on the Bandwagon: Finding Our Place in the Entrepreneurial Ecosystem Discourse

Oladele Seun, Oluwatimileyin Helen Adigun, and Olaosebikan Johnson Olusola

2.1 Introduction

> The future of civilization as we know it depends, at least somewhat, on the spread of entrepreneurship. (Isenberg, 2011: 13)

Life cycle and social prisms propose developmental stages leading to independence and social usefulness. This paradigm is supported by a Yoruba adage that loosely implies that "although one mother delivers a child, a community nurtures the child." The imperatives give credence to the fact that a child is corrected, safeguarded, and celebrated by the

O. Seun (✉) · O. H. Adigun · O. J. Olusola
College of Management and Social Sciences, Business Administration Programme, Bowen University, Iwo, Nigeria
e-mail: seun.oladele2015@gmail.com

O. J. Olusola
e-mail: johnson.olaosebikan@bowen.edu.ng

A. S. Ibidunni et al. (eds.), *Innovation, Entrepreneurship and the Informal Economy in Sub–Saharan Africa*, Sustainable Development Goals Series,
https://doi.org/10.1007/978-3-031-46293-1_2

community and not necessarily the biological parents only. As with a child, this is also the expectation from every startup business. A startup's ability to scale up operations in a region reflects the nature of the environment. It takes the community to provide the right environment for the flow and growth of entrepreneurial firms and, more importantly, the deliberate efforts of all the necessary actors in the community to interact to create a thriving environment. Indeed, unlike the notion that "it takes a city to raise a startup," it is the interaction among the elements in the city that raises the startup, and the fate of an enterprise is contingent on its interaction with the environment in which it operates. This is the heart of the entrepreneurial ecosystem notion, where all key actors and factors are significant to the quality of performance of firms in a region.

The environment that either enables or constrains the creation and growth of firms in a region is described as the entrepreneurial ecosystem (EE). EE describes the interconnectedness of actors, factors, and institutions that facilitate the growth of entrepreneurship in a region (Wadee & Padayachee, 2017). The EE concept was developed in the 2000s (Grigore & Dragan, 2020), gained momentum in 2014 (Maroufkhani et al., 2018; Mukiza et al., 2020), and dominated entrepreneurship literature in 2016 (Grigore & Dragan, 2020). The academic gaze in entrepreneurship research is currently on EE both in developed and emerging economies (Acs et al., 2017; Roundy, 2017; Stam & Van de Ven, 2021). There is a wide consensus about EE being a *sine qua non* for productive entrepreneurship (Stam, 2015), leading to economic growth and development amongst academic, policy, and business literature (Audretsch & Belitski, 2017; Spigel, 2017).

Regions such as Silicon Valley and Tel Aviv have been recognized to have thriving EEs, producing a high level of entrepreneurial activity (in terms of creation and growth of enterprises) in the regions. For example, the USA has the highest number of scaleup firms (scaleup are firms that achieve consistently rapid growth of as much as 20% in revenue and employment for three years) and Unicorns in the world (Unicorns are privately held startups valued at $1billion and more). Following their remarkable success, other regions are also attempting to map their EEs, with considerable success realized in the United Kingdom, Chile, Ireland, and Iceland (Isenberg, 2011). However, replicating the EE recipe from

regions like Silicon Valley and Tel Aviv may prove counterproductive in another community (Arruda et al., 2013). However, they can serve as benchmarks for developing ecosystems in light of the regional/national dynamics.

Depending on the regions, the factors that make up the ecosystem vary in their configuration, with some regions stronger in one element than the other. For instance, Calgary's ecosystem strives on the strength of its oil and gas market, and Waterloo strives on the presence of finance and support organizations. Edinburgh's ecosystem is strongly undergirded by her academic and research institutions and strong support organizations (Spigel, 2015). Imperatively, the mere existence of these ecosystem elements is not sufficient. Rather the interaction that takes place between the elements is what makes an ecosystem (Stam, 2015; Stam & Van de Ven, 2021). Research into EE configuration is growing significantly; however, many grounds are yet to be covered. As it stands, theoretical, empirical, and conceptual perspectives have not been sufficiently explored.

In emerging economies like Nigeria, there are many more grounds to be covered. We find a significant gap in the literature on emerging economies such as Nigeria, which is the primary motivation for this study. This study reviews articles to highlight some of the gaps identified in the literature and see how Nigerian scholars can fit into the ongoing EE discourse. We first provide an overview of current conceptual clarifications and the current frameworks used to assess EEs in other regions. We identify gaps to spur Nigerian entrepreneurial researchers' interest into action based on an extensive literature review.

2.2 Conceptualizing Entrepreneurial Ecosystems

The EE construct is quite appealing yet problematic. On one hand, all stakeholders, including scholars, universities, governments, and industries, insist on defining EE based on their preferred criteria. Also, no single definition of EE currently seems to fit all contexts. The EE construct primarily stemmed from the field of biology and, over

time, has had significant contributions from other fields such as Geography, Economics, Sociology, Psychology, and Public Administration (Theodoraki et al., 2017). However, the three main disciplines underlying EE frameworks are economy (agglomeration, cluster, supportive economic policies), geography (geographical characteristics, cultural effects, configurations of the ecosystem), and sociology (interactions among ecosystem players) (Theodoraki & Messeghem, 2017). Understanding the EE construct requires a basic understanding of the workings of the natural ecosystem. The natural ecosystem comprises *Biocoenosis* and the *Biotope*. *Biocoenosis* (biotic) relates to living things that evolve through their interaction (a relationship involving different organisms that together form a closely knitted community), and *biotope* (abiotic factors) are the conditions of the environments such as the soil, temperature, water, climates) that provides habitation for the integrated community of organisms.

The interaction between the actors (*biocoenosis)* and the environment (*biotope*) is what makes up the natural ecosystem. "In the most natural sense, an ecosystem ("ecological system") is a biotic community, its physical environment, and all the interactions possible in a complex of living and non-living components" (Acs et al., 2017: 2). The question of why apply the ecosystem concept to entrepreneurship seems to have been addressed by Acs et al. (2017). The authors pointed out that the ecosystem concept is about performance which is exactly what economics is about (that is, understanding systems that explain differential outputs and outcomes). They believed that entrepreneurship is one such output that can either be enabled or constrained by its context (ecosystem).

Based on the workings of the natural ecosystem, Kuckertz (2019) argued that some scholars had related EEs to rainforests indicating they comprise living (e.g., actors) and non-living (e.g., institutions) components that interact in complex ways. However, Stam (2015) cautions that the interpretation and application of ecosystem in biology should not be taken literally within the EE context. His emphasis was that since EE was more of a social interaction between interdependent actors within a community, this is closely related to the approach of "systems" in entrepreneurship.

The definitions of EE are highly (though overlapping) varied among authors, which is common in a field of study that is still emerging. The nature and complexity of the concept have made researchers like Stam (2015) and Kuckertz (2019) advise that the concept be applied with caution. According to Stam (2015: 1765), a set of interdependent actors and factors is coordinated in such a way that they enable productive entrepreneurship. Nicotra et al. (2017: 19) expanded on this definition, describing the EE as "a set of interdependent actors and factors coordinated in a way that favours the accumulation of various forms of capital to enable productive entrepreneurship." Mason and Brown (2014: 4) defined EE as "a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organizations (e.g., firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high-growth firms, levels of 'blockbuster entrepreneurship,' number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment." EEs have also been described as inter-related forces promoting and supporting regional entrepreneurship (Roundy & Fayard, 2020).

From the various definitions, certain features appear to overlap. First is the concept of interdependence, interaction, and the complexity of the interaction among different elements (Cavallo et al., 2018). Wadee and Padayachee (2017) described EE as an interaction of elements (factors), individuals (actors), organizations, or institutions. Roundy (2016) regarded them as "the sets of actors, institutions, social structures, and cultural values", while Theodoraki et al. (2017) related EEs as the interaction of actors, physical infrastructure, and culture. While the definition of Roundy placed emphasis on social structures, Theodoraki et al. (2017) focused more on physical infrastructure.

Second is the presence of multiple actors/factors (Roundy, 2016). According to Shwetzer et al. (2019), EEs are multi-level systems involving multi-actors and exhibit heterogeneous and complex tendencies explaining why Theodoraki and Messeghem (2017) regarded it as a "conceptual umbrella." This made Spigel et al. (2020) conclude that EE

is easy to promote but hard to implement. While the literature on EE converges on the point that the entrepreneur is the heart of the ecosystem (Mukiza et al., 2020) who saddles the responsibility of creating, navigating, and managing interaction in the ecosystem (Stam, 2015), the presence and importance of multiple actors have been well documented. Feld (2012) reinforced this notion by relating that although the EE must be led by entrepreneurs, the roles of other actors such as investors, mentors, and government, among others, are equally important even though they play the role of feeders and not leaders.

The third is the notion that entrepreneurship is affected by the external environment, and lastly is, the emphasis that EE occurs within a local boundary (Isenberg, 2010; Szerb et al., 2018). EE has been recognized as a spatial concept (Grigore & Dragan, 2020), with spatiotemporal duality linked to local cultural impact, evolution, and proximity (Theodoraki & Messeghem, 2017). In other words, EE occurs within local/regional boundaries (Isenberg, 2011). The implication of this is that a "one size fits all" approach is not probable (Grigore & Dragan, 2020; Isenberg, 2011). Finally, EEs emerge or occur at different levels. EEs can emerge at regional levels, city levels, and national levels. However, given globalization, some argue that EE participants that are not necessarily situated within the same/close geographical location may be brought together (Mukiza et al., 2020), citing the example of crowdsourcing and crowdfunding (Maroufkhani et al., 2018) (Table 2.1).

In an attempt to synthesize the definitions of EE, this research considers the ecosystem in the entrepreneurship discourse

> as a significant interaction among varying albeit interdependent players comprising individuals, private and public support organisations, and institutions such as Universities and NGOs facilitating the flow of various forms of tangible and intangible capital through formal and informal exchanges, leading to the establishment of new firms, and development of existing firms within a local territory.

The subsequent section discusses the current gaps in literature spanning theoretical, conceptual, empirical, geographical, industry, contexts, and methodological gaps. We draw on literature from advanced and emerging

Table 2.1 Selected definitions of the entrepreneurial ecosystem

S/n	Authors	Definition
1.	(Moore, 1993)	A loosely interconnected network of companies and other entities that co-evolve capabilities around a shared set of technologies, knowledge, or skills, and work cooperatively and competitively to develop new products and services
2.	Van de Ven (1993: 218)	Networks of actors involved in developing each function, and how these functions and networks of actors interacted over time to facilitate and constrain innovation development
3.	Cohen (2006: 2–3)	Entrepreneurial ecosystems represent a diverse set of inter-dependent actors within a geographic region that influence the formation and eventual trajectory of the entire group of actors and potentially the economy as a whole"; "Entrepreneurial ecosystems evolve through a set of interdependent components which interact to generate new venture creation over time
4.	Isenberg (2010: 43)	The entrepreneurship ecosystem consists of a set of individual elements – such as leadership, culture, capital markets, and open-minded customers – that combine in complex ways
5.	Mason and Brown (2014: 4)	A set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organizations (e.g., firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies), and entrepreneurial processes (e.g., the business birth rate, numbers of high-growth firms, levels of 'blockbuster entrepreneurship,' number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment
6.	Acs et al. (2014: 479)	A dynamic, institutionally embedded interaction between entrepreneurial attitudes, abilities, and aspirations, by individuals which drives the allocation of resources through the creation and operation of new ventures
7.	Stam (2015: 1765)	A set of interdependent actors and factors coordinated so that they enable productive entrepreneurship

(continued)

Table 2.1 (continued)

S/n	Authors	Definition
8.	Mack and Mayer (2016: 3)	Entrepreneurial ecosystems consist of interacting components, which foster new firm formation and associated regional entrepreneurial activities
9.	Spigel (2017: 50)	A combination of social, political, economic, and cultural elements within a region that support the development and growth of innovative startups and encourage nascent entrepreneurs and other actors to take the risks of starting, funding, and otherwise assisting high-risk ventures
10.	Roundy and Bayer (2019)	Systems of inter-related forces that promote and sustain regional entrepreneurship
11.	Corrente et al. (2018: 4)	…the capacity of a territory to create a system of actors and infrastructures supporting the creation and development of innovative business projects, beyond the mere construction of a network structure between companies. It refers to a comprehensive system of heterogeneous elements

Source Modified from Theodoraki and Messeghem (2017)

economies to gain insight into what is currently obtainable in the world and where literature on economies in Sub-Saharan Africa stands relative to advanced economies. We raise some salient questions to help local entrepreneurship scholars in Africa shape their studies.

2.3 Conceptual Arguments on Entrepreneurial Ecosystem

The EE construct is quite appealing yet problematic. In the entrepreneurship discourse, scholars hurry to apply the concept before providing answers to cogent conceptual, theoretical, and empirical issues (Stam & Van de Ven, 2021). During the review of the literature, we found articles that reinforced the need for more conceptual clarification of the EE construct. For example, Isenberg (2016) wrote on "Applying the ecosystem metaphor to entrepreneurship: Uses and abuses"; Nuemeyer and Corbett's (2017) work was on "Entrepreneurial ecosystems: weak metaphor or genuine concept?" Similarly, Cavallo et al. (2018) wrote on "Entrepreneurial ecosystem research: Present debates and future directions," while Muldoon et al.'s (2018) work was titled "Entrepreneurial ecosystem: do you trust or distrust?" published an article titled "Let's take the entrepreneurial ecosystem metaphor seriously!" and Spigel et al. (2020) wrote "A manifesto for researching entrepreneurial ecosystems."

These studies make it glaring that the concept of EE is not very well understood or, in many cases, is misconstrued and applied wrongly. According to Stam and Van de Ven (2021), *prima facie*, the EE constructs sound tautological for two reasons. First, the definition- "entrepreneurial ecosystems are systems that produce successful entrepreneurship, and where there is a lot of successful entrepreneurship, there is apparently a good entrepreneurial ecosystem." Secondly, a long list of EE elements has not spelt out cause and effect nor linked to specific place-based histories. As such, there is no clear evidence of the interdependent effects of EE elements on the level of entrepreneurial activity in regions. This has raised concerns about the phenomenon just becoming another buzzword. The boundaries of

EE are not well established because the concept evolves (Grigore & Dragan, 2020; Stam & Van de Ven, 2021), and the members are not fully identified (Grigore & Dragan, 2020). For example, the work of Grigore and Dragan (2020) introduced political entrepreneurship to EE; Guerrero et al. (2020) examined the entrepreneurship process (potential, nascent, and established entrepreneurship) within EE. Fuller-love and Akiode (2020) introduced transnational entrepreneurship within the EE discourse. Similarly, Duan et al. (2021) introduced immigrant entrepreneurship within the EE context.

Furthermore, EE has heterogeneous tendencies (Al-Baimani et al., 2021; Guerrero et al., 2020; Mukiza et al., 2020; Raposo et al., 2021; Roundy & Bayer, 2018; Roundy & Fayard, 2018; Stam & Van de Ven, 2021); and a proclivity to be peculiar in configurations depending on the region (Isenberg, 2011). These unresolved issues, among others, further complicate conceptualization. Spigel et al. (2020) also expressed certain concerns regarding the study of EEs. Their manifesto drew the attention of researchers to women, older entrepreneurs, the disabled, indigenous, and the minority who have been largely ignored in the EE discourse.

RQ: How can the EE construct be well deconstructed given its evolving and heterogeneous tendencies?

RQ: How can the EE construct be conceptualized to capture the role of women, older entrepreneurs, disabled, indigenous, and minority within the EE?

RQ: How can individual entrepreneurial activities result in a macroscopic phenomenon?

RQ: How can EEs be created, coordinated, and governed in a region?

2.4 Theoretical Gaps in the Study of Entrepreneurial Ecosystem

The EE phenomenon is, albeit a growing area of research interest, it is largely underdeveloped and undertheorized (Spigel, 2017). Mukiza et al. (2020) reviewed 51 articles on EE and found that 39 of those articles had

no specific underlying theory. In EE research, what is currently obtainable are frameworks and articles gravitating towards the development of theories that are yet to be substantially validated empirically. Vedula and Kim (2019) summarized methods applied in EE research as far back as 1993, and 60 articles were listed. Half (30) of those articles were theoretical. Some of the common theories that have been applied have been borrowed from other fields, including system theory, dynamic capabilities, institutional theory, social network theory, social capital theory, stakeholder theory, and field theory (Mukiza et al., 2020).

EE specific theories such as the Boulder Hypothesis (Feld, 2012) are still in their development phase requiring empirical validations across regions. The triple helix model has also been applied in some EE studies with much criticism as it implies a top-down approach to developing an innovation ecosystem- an approach that has been seen to not be very effective in many regions (Isenberg, 2011). For example, Iceland, Chile, and Singapore adopted the top-down approach and did not get the expected result. This is interesting because Cao and Shi (2020) reported that the triple helix model was successful in Mexico. On the other hand, Israel has been agnostic for more than four decades in terms of policy stance, and this explains the successful cultivation of their broad-based entrepreneurship (building the highway system) (Ibid.). Roundy (2018), Roundy and Bayer (2018), Roundy and Fayard (2019), Roundy et al. (2018) are notable examples of works dedicated to the development of EE specific theories.

Wurth et al. (2021), acknowledging the wide gap in EE theory, presented certain issues, including "how institutional and evolutionary approaches can be synthesized especially across varying temporal and spatial scales at which EEs evolve. Another issue relates to integrating social network theory with other theories related to relationships, such as the agency theory, proximity, or uneven social power and authority. They also raised the question of bridging the gap between EE structures, dynamic capabilities, and actors' resources. While these gaps are not exhaustive, they present a path toward achieving and developing EE specific theories.

RQ: What theories best explain the nature of EEs in regions?

2.5 Empirical Gaps in the Study of Entrepreneurial Ecosystem

There is a long list of eco-factors believed to shape an ecosystem for productive entrepreneurship but without empirical evidence (Nicotra et al., 2017). Vedula and Kim (2019) compiled and presented literature on regional EE from 1993 to 2018 and found only six articles to be empirically based. Similarly, a dearth of empirical literature was also reported in the systematic review of Cao and Shi (2020) and Mukiza et al. (2020). These studies have found that publications that gravitated towards developing theories, reviews, and case study approaches, including multiple case studies, dominated EE literature (Maroufkhani et al., 2018). Therefore, one particular direction of research is assessing entrepreneurial ecosystem factors using empirical research designs and surveys per se (Maroufkhani et al., 2018). The lack of empirical evidence cuts across developed, and emerging economies as the EE construct is a relatively new area of study. For example, the causal relations between eco-factors and eco-outputs (productive entrepreneurship) have not been sufficiently investigated empirically (Nicotra et al., 2017; Stam, 2015). However, scholars are increasingly examining empirical dimensions in advanced countries (Cao & Shi, 2020; Leendertse et al., 2020).

In the same way, different studies have approached the study of EEs from different perspectives using different frameworks, so the findings also varied significantly. While some regions have shown strengths in some factors, other regions have shown strengths in other factors (see Table 2.2). For example, Wulandari (2021) emphasized culture, finance, policies, and leadership, human capital, markets, supports, and institutions as the essential components of entrepreneurial ecosystems. But, in the study of Arabi and Abdalla (2020) on "The role of the ecosystem for entrepreneurship development in Sudan," nine elements were identified, including finance, government policy, human capital, markets, culture, innovation, regulatory framework, support services, infrastructure and research and development (R&D). In comparison, the work of Corrente et al. (2018), using stochastic multicriteria acceptability analysis, gave preference to cultural and social norms, government programs, and internal market dynamics as the most important factors that accounted

for the difference in entrepreneurial ecosystem performance of regions. However, applying a panel data analysis, Mukiza and Kansheba (2020) reported that finance, government support programmes, market, knowledge, and culture were weak determinants of productive entrepreneurship within entrepreneurial ecosystems in Africa without the mediating role of innovation.

Pathak and Mukherjee (2020) introduced the dimension of social entrepreneurship in entrepreneurial ecosystems. This was in line with the concern of Polbitsyn (2020) regarding the need for entrepreneurs and local authorities to increase active participation in improving living standards in rural communities. However, the underlying framework for their research was that of Stam (2015), similar to the work of Iacobucci and Perugini (2021) and Xu and Dobson (2019). In Duan et al. (2021) study, the dimension of immigrant entrepreneurship was also introduced to the context of entrepreneurial ecosystems. The study made a significant contribution by drawing attention to the joint effects that immigrant entrepreneurs enjoy from both effects of host and home country entrepreneurial ecosystems.

Grigore and Dragan (2020), just like Raposo et al. (2021) and Tolstykh et al. (2021), keyed into the idea that the entrepreneur is at the heart of a functioning entrepreneurial ecosystem. They noted that "*the place matters to an entrepreneur just as the entrepreneur matters to a place*." The study presented an interesting synthesis of theoretical frameworks that have emerged in the study of entrepreneurial ecosystems over time from Cohen (2006) to WEF. Their study further added a custom factor based on specificity concerning the region being studied. The factor added political entrepreneurs as integral actors in the entrepreneurial ecosystem. The study challenged the classical frameworks for having a limitation of not capturing the context of transitioning economies. They argued that the presence of a political entrepreneur in an ecosystem is a virus with capacity of disrupting sustainability agendas. This argument constitutes a significant contribution to knowledge and subsequent studies can begin to test for the presence of the political entrepreneur in ecosystems and their impact.

However, literature in emerging economies is constricted to the development of EE, mapping of EEs, and how to build EEs. In emerging

Table 2.2 Summary of selected empirical literature

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
1.	Iacobucci and Perugini (2021)	*Italy*	Framework, systemic, and human conditions, economic resilience,	Stam (2015)	Regression	The degree of coherence and diversity in the entrepreneurial ecosystem elements determine their level of impact. With time, the different elements of the entrepreneurial ecosystem on resistance and recovery from crisis vary	Limited to two regions in Italy
2.	Raposo et al. (2021)	*General*	Cooperation with universities, research institutes, customers, suppliers, sustainability	Oslo manual framework	Binary and logistic distribu-tion	The greater the simultaneous agglomeration and participation of actors in an ecosystem, the greater the effect of the entrepreneurial ecosystem on sustainability	Neglected regional levels
3.	Meero et al. (2020)	*Bahrain*	Risk-taking attitude, effective motivations, innovation, creativity, persistence, and flexibility	Not mentioned	Exploratory	The challenges and failures in Bahrain's entrepreneurial ecosystems are related to technology, market, customer, and finance	No inferences can be drawn

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
4.	Stam and Ven (2021)	*Netherlands*	Quality of entrepreneurial ecosystems	Systems approach	Qualitative	Interdependence and coevolution, upward and downward causation was present in entrepreneurial ecosystem interactions	The study was not predictive
5.	Rashid and Ratten (2021)	*Pakistan*	Sensing, seizing, and transforming abilities	Dynamic capabilities	Qualitative research methods	Three main themes for small businesses to emerge were carte blanche business models (seizing), effectual business functions (transforming), and emergent humanitarian crisis (sensing)	The study could not show that the businesses displayed dynamic capabilities
6.	Tolstykh et al. (2021)	*Russia and Poland*	Density, fluidity, diversity, connectivity, and entrepreneurial environment	Isenberg (2011)	Qualitative research method	A mature, sustainable entrepreneurial ecosystem contributes to the local community's development and the entire country	Limited data

(continued)

Table 2.2 (continued)

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
7.	Duan et al. (2021)	*General*	Human capital, accessible market, social culture, funding and finance, government and institutions, infrastructure, and business support	Dual embeddedness theory, simultaneous embeddedness notions; transnationalism theory	Qualitative	All six entrepreneurial ecosystem elements in the home country, including human capital, accessible market, social culture, funding and finance, government and institutions, infrastructure, and business support, be empirically incorporated when studying immigrant entrepreneurs	Lacks empirical backings

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
8.	Pobee (2021)	*Malawi*	GEI 14 pillars index	Theory of planned behaviour for studying attitude and self-efficacy theory for abilities	Quantitative analysis	Findings show that the entrepreneurial ecosystem of Malawi fell significantly below (12.2/100) acceptable threshold (based on the global entrepreneurship index). This means the entrepreneurial ecosystem in Malawi is weak. Entrepreneurial sub-indices studied, including attitude, ability, and aspiration (AA&A), did not significantly contribute to the economy's GDP per capita	Relied solely on secondary data
9.	Wulandari (2021)	*General*	Entrepreneurial capabilities, entrepreneurial ecosystem, growth of entrepreneurship	Not mentioned	Analytical hier-archy process and simple additive weighing	Entrepreneurial capabilities and the entrepreneurial ecosystem influence the growth of entrepreneurship	Lacked theoretical underpinning

(continued)

Table 2.2 (continued)

S/n	Authors	Country/Location	Variables	Framework	Methods	Major Findings	Gaps
10.	Mukiza and Kansheba (2020)	*35 African countries*	Eco-factors, innovation, productive entrepreneurship	Not mentioned	Panel regression	"The findings reveal mixed (positive and negative) and weak, insignificant direct influence of eco-factors such as finance, government support and programmes, knowledge, market, and culture on productive entrepreneurship. However, their influence is more pronounced when innovations mediate the relationship"	It relied majorly on secondary data. Secondary data sources are often limited in entrepreneurial ecosystem studies

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
11.	Subrahmanya (2020)	*Bangalore, India*	Market maturity, mentorship, education, and research institutes	Triple helix	Delphi Technique (logistic regression)	"The prevailing entrepreneurial ecosystem for tech startups in Bangalore is significantly different (lower) relative to an ideal ecosystem feasible in the Indian economic environment, as prescribed by the Delphi experts, both at the aggregate level and at the individual component level. Bangalore ecosystem is primarily lacking in terms of one of the Triple Helices, namely, the role of education and research institutions, and two of the five indispensable components, namely, market maturity and mentorship"	The study did not link the prevailing ecosystem condition to the level of entrepreneurial activity. Limited sample size

(continued)

Table 2.2 (continued)

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
12.	Scheidgen (2020)	*Berlin*	Formal exchanges, informal exchanges, knowledge, mentors, and finance	Structuration theory	Qualitative	"Entrepreneurial ecosystems can have different degrees of integration, and that this characteristic strongly impacts how entrepreneurs can acquire resources from the entrepreneurial ecosystem and thus how specific entrepreneurial ecosystems promote different types of entrepreneurs. Heterogeneous structures, therefore, do not only exist between entrepreneurial ecosystems but also within entrepreneurial ecosystems"	The study findings cannot be generalized
13.	Polbitsyn (2020)	*Russia*	Entrepreneurial ecosystem, economic development	Not mentioned	Descriptive and T-tests	For rural territories to grow, there is a need for a special rural entrepreneurial ecosystem	Small sample size

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
14.	Arabi and Abdalla (2020)	*Sudan*	Finance, policy, talent, markets, culture, innovation, regulatory framework, support, infrastructure, and R&D	Institutional theory	Multiple regres-sion	The relationship between entrepreneurial ecosystem and entrepreneurship development was significant in finance, government policy, human capital, infrastructure, research and development, and innovation and regulatory framework but not culture, markets, and support services	Issues with generalization (focused on manufacturing firms)
15.	Grigore and Dragan (2020)	*Bucharest and Cluj-Napoca*	Finance, policy, supports, market, culture, political entrepreneur, regional growth	Mason and Brown	Thematic analysis	The presence of a political entrepreneur in an ecosystem is a virus with the capacity of disrupting sustainability agendas	Lacks in-depth analysis

(continued)

Table 2.2 (continued)

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
16.	Cao and Shi (2020)	*General*	Distinctive features of entrepreneurial ecosystems in advanced and emerging economies	Not mentioned	Systematic review	Ecosystems vary in terms of governance, structure, and resources. Specifically, they identified that structural gaps, resource scarcities, and institutional voids are principal reasons why advanced economy's entrepreneurial ecosystem model cannot be directly applied to emerging economies	No inferences can be drawn

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
17.	Mukiza et al. (2020)	*General*	Infrastructure, culture, policy, supports, institutions, and entrepreneurial activity	Not mentioned	Thematic analysis	The article placed the entrepreneur at the centre of the ecosystem specifying the contributions of infrastructure, culture, policies and regulation, business support services, institutions (educational, R&D, and financial) to support the entrepreneur and entrepreneurial activity within the ecosystem	Inferences cannot be drawn
18.	Fredin and Lidén (2020)	*General*	Entrepreneurial ecosystems	Complex adaptative system	Qualitative	The study proposed that studying the components of entrepreneurial ecosystems independently will not allow for a proper understanding of the behaviour of the entrepreneurial ecosystems	No inferences can be drawn

(continued)

Table 2.2 (continued)

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
19.	Leendertse et al. (2020)	*273 European regions*	Stam framework	Systems approach	Regression	"…analyses show that physical infrastructure, finance, formal institutions, and talent take a central position in the interdependence web, providing the first indication of these elements as fundamental conditions of the entrepreneurial ecosystem"	Relied on secondary data. Some of the eco-factors could not be properly measured
20.	Roundy (2018)	*Ohio*	Regional narratives, the functionality of entrepreneurial ecosystems	Not mentioned	Longitudinal study	The study found that without success stories, entrepreneurial ecosystems are bound to underperform	Subject to empirical validations

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
21.	Xu and Dobson (2019)	*Sub-Saharan Africa/ Guildford's digital gaming industry*	Culture, markets, policy, finance, supports, talent,	Isenberg (2011) and Stam (2015)	Review	Remoteness, smallness, and lack of resources were some of the critical challenges. However, through a collaborative effort, peripheral areas can leverage digital technology and build a vibrant ecosystem tackling finance, talent, infrastructure, socio-cultural environment, market, and policy issues	The conceptual framework developed requires further empirical inputs for generalizability
22.	Xie et al. (2019)	*China*	Entrepreneurial ecosystem performance, internal ecosystem factors, external ecosystem factors	Not mentioned	Structural equation modelling	"The political environment is the most crucial factor impacting the entrepreneurial ecosystem performance of Internet cultural industries"	Findings were based on the perception of the entrepreneurs

(continued)

Table 2.2 (continued)

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
23.	Roundy et al. (2018)	*General*	The complexity of entrepreneurial ecosystems	Complex adaptive system	Qualitative	The intentionality of entrepreneurs, entrepreneurial activities coherence, and resource injection are three related factors that would influence the emergence of an entrepreneurial ecosystem as complex adaptive systems	Subject to empirical validations

S/n	Authors	Country/ Location	Variables	Framework	Methods	Major Findings	Gaps
24.	Theodoraki and Messeghem (2017)	*France*	Entrepreneurial ecosystem, business incubator systems, entrepreneurial support systems	Complex network theory, institutional theory	Exploratory (case study)	Entrepreneurial ecosystem is a multi-level construct comprising entrepreneurial ecosystem (macro-level), entrepreneurial support ecosystem (Meso level), and business incubator ecosystem (micro-level). Understanding the interplay among sub-ecosystems is key to understanding the entrepreneurial ecosystem's success	The study needs to be extended to business incubators. The cultural aspect of the entrepreneurial ecosystem was also not incorporated
25.	Nicotra et al. (2017)	*General*	Eco-factors, Eco-outputs, productive entrepreneurship	Not mentioned	Qualitative	Financial, knowledge, institutional, and social capital were forms of capital that affect eco-outputs (productive entrepreneurship)	Not empirically validated

Source Authors' Compilation (2021)

economies, a handful of studies have attempted to provide a foundation for the study and theorizing of ecosystems in Sub-Saharan Africa (Manya, 2020; Oluwatobi et al., 2019; Sheriff & Muffatto, 2015). However, these studies have not adequately captured the dynamic elements of these ecosystems within the emerging economic framework or configurations of the observed countries. For example, Oluwatobi et al. (2019) reviewed higher institutions in Nigeria, stating that universities have the potential to be innovation centres. Sheriff and Muffatto (2015) conducted a polygonal study on Egypt, Botswana, Ghana, and Uganda, pointing out that entrepreneurs were present in all the regions, but ecosystem dynamics varied, which explained the differences in the growth of entrepreneurship in the regions.

Due to a dearth of empirical literature, most early attempts in Nigerian studies would be to build EEs, identify the elements of EEs, understand the interactions among the actors, and identify the key challenges to building and growing EEs. This is a long ride away from empirical studies obtainable in the Global North regions, for example, Silicon Valley, but it is surely a step in the right direction.

RQ: What are the causal effects of the EE elements on the level of entrepreneurial activity in the Sub-Saharan region of Africa?

RQ: What is the nature of the interaction among EE elements in the Sub-Saharan region of Africa?

2.6 The Framework Gaps in the Study of Entrepreneurial Ecosystems

There is quite a list of frameworks in literature proposing several components that make up the EE ranging from six elements, including human capital, policy, supports, markets, finance, and culture (Isenberg, 2011); to eight elements, including access to markets, human capital, support

system, education and training, funding and finance, regulatory framework and infrastructure, major universities as a catalyst, cultural supports by Foster et al. (2013) to fourteen elements by Acs et al. (2014). Spigel (2017) also grouped all the components commonly mentioned until 2015 into three, including cultural (e.g., supportive culture), material (e.g., Policies, infrastructure), and social (e.g., networks, mentors). For Stam (2015), ten elements make up the EE grouped into framework conditions (formal institutions, culture, physical infrastructure, and demand) and systemic conditions (networks, supports or intermediary services, leadership, finance, talents, and knowledge). These ten elements are the eco-factors that result in productive entrepreneurship (eco-output), which generates economic value (eco-impacts). Stam (2015) argues that framework conditions such as formal institutions determine the (in)effectiveness of the systemic conditions, affecting the outputs and subsequently the outputs. The framework of Isenberg (2011) and Stam (2015) have been applied in many studies.

Currently, the prominent framework existing in Nigeria was developed by the Fate Foundation (2016), including policy and regulation, business support, access to resources, capacity building, access to finance, access to markets, research, and development. The framework drew significantly from the work of Isenberg (2011) and Aspen Network (2013), using a flat structure to describe the elements of the ecosystem. These elements, as prescribed by the Fate Foundation, have also not been empirically tested, and there is a need for more study in that area. Hence the questions:

RQ1: What are the core elements of the Nigerian entrepreneurial ecosystem?

RQ2: Who are the key actors/players in the Nigerian entrepreneurial ecosystem?

2.7 Geographical/Country Focus of Studies on Entrepreneurial Ecosystem

In terms of geographic scope, there have been more studies in developed economies than in emerging economies (Neumeyer & Corbett, 2017; Roundy et al., 2017). Maroufkhani et al. (2018) revealed that 37% of reviewed articles did not specify a particular country, while 21% of the reviewed papers focused on the United States of America, with the UK trailing behind. The result was further reinforced by Cao and Shi (2020), who found the USA and UK to have the highest publications on EE. Given that track record, they iterated that more studies are expected to be carried out in those regions.

Manya (2020) noted that despite EE being a global phenomenon (Acs et al., 2014), much of the academic gaze has been on Silicon Valley, Tel Aviv, Waterloo, Singapore, Dutch, and Australia, which possess entrepreneurial conditions that are usually not present in developing economies like Nigeria (Manya, 2020). The findings from these regions and the models applied cannot be directly applied to emerging countries like Nigeria. Cao and Shi (2020) noted that structural gaps, resource scarcities, and institutional voids are principal reasons why advanced economy's EE model cannot be directly applied to emerging economies. Isenberg (2011) also noted that applying such knowledge of EE in a region such as Silicon Valley to all ecosystems can be disastrous. Countries in Sub-Saharan Africa like Nigeria have not gotten much attention in the EE discourse. Lafuente et al. (2018) attributed the paucity of African literature to the scarcity of local entrepreneurship researchers, the under-researched nature of the subject area, and the lack of entrepreneurs to study. While the first two reasons may be largely true, Nigeria, for example, does not lack entrepreneurs to study. Rather, the lack of cooperation between academia and the industry has threatened the richness of EE study. Additionally, data is largely unavailable.

Although the issue of data unavailability is a major issue in EE studies generally all over the world (Leendertse et al., 2020), this is more profound in Nigeria. As such, many scholars have to rely on primary data, notably interviews and survey questionnaires. However, recently, organizations like PwC, Co-creation hubs, StartupBlink, Bank

of Industry, Fate Foundation, Aspen, and Endeavor are showing a remarkable interest in the study of EE and are willing to collaborate with researchers through funding and support. The outstanding performance of Lagos, Nigeria, in appearing in the global startup ecosystem is a "green light," presenting local researchers with the opportunity to delve into the EE discourse.

RQ: What is the state of entrepreneurial ecosystem study in Sub-Saharan Africa?

RQ: What factors affect the study of the entrepreneurial ecosystem in Sub-Saharan Africa?

2.8 Methodological Gaps in the Study of Entrepreneurial Ecosystem

In terms of methodology, there are more qualitative studies than quantitative studies (Spigel et al., 2020). The systematic review of Mukiza et al. (2020) showed that most EE studies had been mainly literature reviews and conceptual papers relative to quantitative studies. They found that only 8 of those studies were quantitative, and two employed mixed methods out of 51 articles reviewed. The review of Maroufkhani et al. (2018) also supported a striking gap in quantitative modelling and survey-based research design. They found that most of the studies (12 out of 19) towards applying, developing, or reporting case studies in the investigations. Cao and Shi (2020) similarly reported that most empirical studies on EE have been qualitative by using case studies. Most of the case studies have been limited to Western economies such as Silicon Valley and the UK (Maroufkhani et al., 2018), while very few multiple case studies have been applied. They listed 19 key empirical research on emerging economies, and only six were quantitative, while two were mixed methods.

In attempts to improve empirical studies in EE, Spigel et al. (2020), in a manifesto, recommended some new methodologies that can be

applied to studying different aspects of EE. For assessing the diversity of EEs in a region, they recommended qualitative comparative analysis (QCA). QCA is a case-based methodological approach that permits analysing multiple cases involving complex interactions. Leendertse et al. (2020) added that this methodology could improve the current understanding of the workings of the EE by explaining the "why" of changes in some cases and not in others. The methodology involves a detailed use or development of theory of change, identification of cases of interest, development of a set of factors, scoring the factors (crisp or fuzzy set), analysing the dataset, and interpreting the findings or revising the change theory. The recent publication titled "Institutional factors affecting entrepreneurship" by Sendra-Pons et al. (2022) is a notable example.

Another methodology recommended that has not been explored much is the bottleneck methodology as applied by the EU. This methodology is considered suitable for understanding the relationship among EE elements and revealing EE attributes that require development. It is suitable for understanding the strengths and weaknesses of ecosystems. The work of Torres and Godinho (2021) on "Levels of necessity of entrepreneurial ecosystems elements" is a notable example. Aspen Network (2013) also put together a firm-level survey instrument for primary data collection. The questionnaire contains 45 questions to get a researcher started on a region's EE survey. They recommended that the survey instrument be adapted to local conditions by removing items that do not apply or adding items peculiar to their local conditions. Furthermore, they suggested that to produce better results, the survey instrument should be administered annually to track the evolution or changes in the ecosystem.

RQ: What methodological options best suit the study of EE in the Nigerian context, given data availability?

2.9 Industry Focus on Studies of Entrepreneurial Ecosystem

In terms of industry scope, industries such as biotechnology, high technology (Sohns & Wojcik, 2020), and education (Al-Baimani et al., 2021; Tsukanova et al., 2017; Wadee & Padayachee, 2017) have been favoured in EE literature (Maroufkhani et al., 2018). In the systematic review of Mukiza et al. (2020) covering 14 years (2006–2019), They reported 12 articles on research and development and education, six on technology, and 33 of those articles did not have a specific sector focus. This was also confirmed in the review of Maroufkhani et al. (2018), noting that education was given more attention by EE scholars. They added that biotechnology, solar services, biomedical, and high technology industries have gained significant attention.

The gap in industry focus calls for more research on other industries, such as e-commerce and agriculture, among others. The focus of Nurcahyo et al. (2018) on the Indian fashion industry; Pathak and Mukherjee (2020) on community-based crafts in India; and Mckague and Wong (2017) on agriculture in rural economies presents opportunities that EE can be studied beyond technology and education. It can be observed that the articles that have focused on other industries were mostly in India. The country is seen to be exploring the options of having a vibrant ecosystem that can spur entrepreneurial growth across industries. Nigeria can also plug into this especially given our resource endowment and potential capabilities.

2.10 Level of Analysis/Context Gaps in the Studies on Entrepreneurial Ecosystem

Quite many studies on EE have focused on the macro-level, while few have channelled their attention to unveiling the meso and micro-perspectives of EEs (Neumeyer & Corbett, 2017; Pobee, 2021; Roundy et al., 2017). In terms of contexts, there are more studies at the national

level than in local or regional contexts. Iacobucci and Perugini (2021) noted a lack of empirical evidence on the measures of EE at a local level. According to the authors, the best way to analyse and understand EEs is to study them locally, as the interaction between EE metrics shows large variation. There is a wide consensus that urban and rural EE vary significantly (Polbitsyn, 2020).

Xu and Dobson (2019) worked on the challenges of building entrepreneurial ecosystems in peripheral places. They point out that peripheral areas vary significantly from urban cities in terms of skilled labour and labour diversity endowment, infrastructural endowments, and institutional endowments—elements that are critical to building a striving ecosystem. Xu and Dobson (2019) argued that for rural territories to grow, there is a need for a special rural EE to be created (an aspect that the study argues has received little attention). The study used a traditional literature review approach to identify gaps, patterns and themes in the prevailing research landscape. They stressed that in building entrepreneurial ecosystems in regions, academics and policy makers cannot ignore peripheral places (rural or marginal regions) while focusing on urban cities. They realized that though in the Sub-Saharan part of Africa there is a high level of entrepreneurial activity, their contribution to GDP is not commensurate to the level of activity. This brings to the fore the prevalence of necessity or subsistence entrepreneurship in contrast to opportunity-driven entrepreneurship in those regions.

RQ: How can EEs be developed in rural areas in pursuit of enhancing opportunity-driven entrepreneurship?

We feature a special area of research as presented by (Roundy, 2017). His work focused on describing the nature of EEs that can emerge in small-town economies (advanced and emerging). Roundy stressed that though small towns are "small," they immensely contribute to economic development. However, small cities differ in areas such as resource endowment (human capital, diffusion technology), size, population, infrastructure, and underdeveloped markets from the typical booming urban centres. *Does this serve as a deterrent or lead to innovative entrepreneurial ecosystems?* Also, small cities in developed economies can be said to differ

from small cities in underdeveloped or developing economies in their proportion and access to the elements that make up an ecosystem. These variations may have significant effects on the workings of the ecosystem. For example, access to fund sources, large markets, predictable legal and regulatory processes, infrastructure, human capital, and professional services are critical components that drive entrepreneurial success. Some conditions that spinoffs in developing economies as opposed to developed economies do not have in good measure. Ciesinski and Kissick (2016) pointed out that emerging economies are confronted with a lack of or poor access to these resources to kick start, grow, and sustain their venture.

RQ: The question, can thriving entrepreneurial ecosystems stem from small towns, and how especially in developing economies, still lingers?

2.11 Missing links: Where is Nigeria in the Study of Entrepreneurial Ecosystems in Nigeria?

> The irony is that although there are few deliberate entrepreneurship ecosystem approaches, we collectively know a lot about how to impact individual domains of the entrepreneurship ecosystem. We know how to educate entrepreneurs; we know the types and amounts of capital and capital markets that are effective, and their delivery mechanisms; we know how to impact the culture of entrepreneurship; we know a lot about the regulatory frameworks and governance structures; we know how to get large companies to interact with small innovative suppliers and how to actually create new markets of opportunity (…) we know how to create special economic zones, business plan contests. But no one, or precious few, has put them all together, primarily because no one has elucidated the ecosystem strategy. (Isenberg, 2011: 12)

Isenberg's stand largely holds (not exclusively) in Nigerian literature. Extant literature in Nigeria is saturated with fragmentation. Studying the

elements of EE in isolation, as observed in the literature, cannot produce the expected outcome of understanding the environmental conditions of a business landscape and how it shapes entrepreneurial activity (Rashid & Ratten, 2021). Isenberg (2011) argued that many governments fail in creating effective entrepreneurship-related policies because of overemphasizing the importance of one or two of the elements of the EE without regard for the dynamic interaction among all the elements. The interaction is much more complex and dynamic, involving exchanges and the flow of information and resources among various actors within the ecosystem. The social structure emphasizes that it is the presence of the elements and the interaction that occurs that makes an ecosystem functional or dysfunctional.

So much has been done on the nature of the Nigerian business environment and the performance of SMEs (Dogara, 2015; Eruemegbe, 2015; Franca, 2014; Obasan, 2014; Obisi & Gbadamosi, 2016; Ogunro, 2014). Scholars have also focused on aspects of innovation (Oladele & Oladele, 2016; Oladele et al., 2017; Raimi & Yusuf, 2020). There are studies on entrepreneurial culture and studies on clusters (Adu et al., 2014; Ekesiobi & Dimnwobi, 2021; Ekesiobi et al., 2018; Oyeyinka, 2017). Some studies have looked at the entrepreneur as a principal factor shaping the outcome of an enterprise. However, Raposo et al. (2021) highlighted that these aforementioned areas hardly constitute novelty in literature. Ekesiobi and Dimnwobi (2021) revealed that a very significant gap in the literature exists on EEs in the Nigerian context.

Currently, very few attempts (if any) have focused on linking these factors together, understanding their systemic nature and interaction, and their evolution in Nigeria. However, there are few studies on Africa that have mentioned Nigeria in passing (Sheriff & Muffatto, 2015). Other studies that focused on Nigeria concentrated on the university ecosystem (Jegede & Nieuwenhuizen, 2021; Oluwatobi et al., 2019). Fate Foundation (2016) represents one of the earliest attempts toward mapping Nigeria's entrepreneurial ecosystem. Aspen Network of Development Entrepreneurs [ANDE] (2017) also provided a snapshot of the Lagos entrepreneurial ecosystem. However, these publications are not journaled publications but are what is currently obtainable.

2.12 Why Study Entrepreneurial Ecosystems in Nigeria?

The Nigerian business landscape has enjoyed considerable growth in recent years with the launching of numerous startups and the performance of scaleups across major cities like Lagos, Abuja, Kano, Port Harcourt, and Aba (Startup Universal). Their improved economic activity draws concern about the uneven concentration of high-growth firms in a few cities across the Nation. For example, in the report by Companies to inspire Africa, Nigeria topped the chart of African countries with the highest concentration of high-growth firms, recording 59 (17%) high-growth startups out of 343 companies from 42 African countries featured in the report (London Stock Exchange Group, 2019). The same report in 2019 also showed Nigeria again topping the chart with a total of 97 (27%) high-growth companies out of 360 companies from 32 countries featured in the report. Most of these companies were launched and are still headquartered in Lagos state (London Stock Exchange Group, 2019).

Currently, Lagos state is considered the commercial hub of Nigeria and the "Silicon Valley" of Africa. In 2017 alone, the state attracted an investment of $ 2 billion, making it the most valuable startup hub in Africa. For the first time, Lagos in 2020 made it to the top 100 cities in the world. Lagos has birthed many startups, especially in the technology industry, cutting across financial services (Paga, Flutterwave, and Paystack), entertainment (Boomplay), and agriculture (Farmcrowdy); healthcare (MDaas Global), and consumer services (Jumia and Konga) among others (StartupBlink). This also follows the report of the Bank of Industry (2018) that the success of ICT in Nigeria has contributed 12.2% to GDP (Manya, 2020). Although compared to advanced economies, this is far behind, and the results so far point to some level of progress in the level of entrepreneurial activity. If there was a time to take the study of the entrepreneurial ecosystem in Nigeria seriously, it is now!

2.13 Implications for Theory and Practice

Viewing the dynamic business environment from the lens of an ecosystem provides a more holistic approach to understanding the nature, interaction, and quality of the entrepreneurial ecosystem that can foster productive entrepreneurship in a region. This is especially important as no two entrepreneurial ecosystems are the same, and it has been stressed that all societies should "cultivate their own." This study would be a major shift away from the numerous fragmented studies that have viewed various aspects of the ecosystem in isolation without taking into consideration the interactions among the diverse actors that shape the ecosystem. Each ecosystem has its configuration. As such, mapping and understanding the strengths and weaknesses of the links, interactions, and exchanges within the ecosystem are essential to improving the performance of the ecosystem. Hence, this study draws the attention of researchers to largely unexplored areas, and by so doing, hopefully, more studies will shine a light on the various aspects of the Nigerian EE to increase our understanding of the ecosystem.

Based on empirical reports from the literature, the expected outcome of a functional ecosystem is productive entrepreneurship that results in economic growth and development, especially in employment, innovation, poverty alleviation, exports, and foreign direct investment. Currently, and as supported in the literature (Isenberg, 2011; Lafuente et al., 2018), most policy stances meant to "support" entrepreneurial growth are antithetical to growth because, so far, the government does not have the compass pointing them to the "True North" (that is at least 1/100,000 high potential venture of any sector) and so they currently navigate by landmarks (Isenberg, 2011). Thus, by unveiling these links and gaps within the EE in Nigeria, the government and significant players in the policy space can tailor policy efforts towards strengthening those areas and truly support the growth of entrepreneurship in the region and Nigeria as a whole.

2.14 Conclusion

We provide compelling reasons why the study of EE in the Nigerian context is important, timely, and attractive. The study identified some gaps in the study of EE globally and also narrowed it down to peculiar gaps in African and Nigerian literature. We also raised salient questions that can get local researchers started in their attempts to study EE in their regions. The study concludes that significant gaps exist in theory, empirical evidence, frameworks, methodologies applied to study EEs, geographical focus, industry focus, and the level of analysis. Fundamentally, a holistic and systemic understanding of EEs in Nigeria is bleak and fragmented. Invariably, relative to what is obtainable in the Western countries, for example, Silicon Valley, the understanding of the Nigerian EE is low. The study also concludes that for the Nigerian economy to benefit from the expected output of a vibrant EE, the starting point is mapping and understanding the dynamics of the ecosystem to identify links, exchanges, and structural gaps in order to focus policy efforts on the right places.

References

Acs, Z. J., Estrin, S., Mickiewicz, T., & Szerb, L. (2014). *The continued search for the solow residual: The role of national entrepreneurial ecosystem.*

Acs, Z. J., Stam, E., Audretsch, D. B., & Connor, A. O. (2017). The lineages of the entrepreneurial ecosystem approach. *Small Business Economics, 49*(1), 1–10.

Adu, J. T., Shokunbi, M. O., & Cole, B. M. (2014). Building sustainable business clusters towards global competitiveness: Case study of furniture making along Owode- Ajegunle axis of Lagos State. *Journal of Poverty, Investment and Development, 5*, 46–51.

Al-Baimani, N., Clifton, N., Jones, E., & Pugh, R. (2021). Applying the ecosystem model in a new context? The case of business incubation in Oman. *Growth and Change*, 1–24. https://doi.org/10.1111/grow.12471

Arabi, N. G. A., & Abdalla, A. M. A. (2020). The role of ecosystem for entrepreneurship development in Sudan. *World Journal of Entrepreneurship,*

Management and Sustainable Development, 16(4), 307–326. https://doi.org/10.1108/WJEMSD-09-2019-0075

Arruda, C., Nogueira, V. S., & Costa, V. (2013). The Brazilian entrepreneurial ecosystem of startups: An analysis of entrepreneurship determinants in Brazil as seen from the OECD pillars. *Journal of Entrepreneurship and Innovation Management, 2*(3), 17–57.

Aspen Network of Development Entrepreneurs. (2013). *Entrepreneurial ecosystem diagnostic toolkit*.

Aspen Network of Development Entrepreneurs. (2017). *Lagos entrepreneurial ecosystem snapshot*.

Audretsch, D. B., & Belitski, M. (2017). Entrepreneurial ecosystems in cities: Establishing the framework conditions. *Journal of Technology Transfer*, *42*(5), 1030–1051. https://doi.org/10.1007/s10961-016-9473-8

Bank of Industry. (2018). *Industrial clusters and economic development in Nigeria* (No. 4).

Cao, Z., & Shi, X. (2020). A systematic literature review of entrepreneurial ecosystems in advanced and emerging economies. *Small Business Economics*, 1–36. https://doi.org/10.1007/s11187-020-00326-y

Cavallo, A., Ghezzi, A., & Balocco, R. (2018). Entrepreneurial ecosystem research: Present debates and future directions. *International Entrepreneurship and Management Journal*, 1–24. https://doi.org/10.1007/s11365-018-0526-3

Ciesinski, S., & Kissick, R. (2016). *A Note on Entrepreneurial Ecosystems in Developing Economies* (pp. 1–28).

Cohen, B. (2006). Sustainable valley entrepreneurial ecosystem. *Business Strategy and the Environment, 15*, 1–14.

Corrente, S., Greco, S., Nicotra, M., Romano, M., & Schillaci, C. E. (2018). Evaluating and comparing entrepreneurial ecosystems using SMAA and SMAA-S. *The Journal of Technology Transfer*, 1–35. https://doi.org/10.1007/s10961-018-9684-2

Dogara, G. N. (2015). The impact of the Nigerian business environment on company performance: A case of 20 most capitalised companies in Nigeria. *International Journal of Business and Management, 3*(4), 36–48.

Duan, C., Sandhu, K., & Kotey, B. (2021). Understanding immigrant entrepreneurship: a home-country entrepreneurial ecosystem perspective. *New England Journal of Entrepreneurship*, 2574–8904. https://doi.org/10.1108/NEJE-05-2020-0013

Ekesiobi, C., & Dimnwobi, S. K. (2021). Economic assessment of the Igbo entrepreneurship model for entrepreneurial development in

Nigeria: Evidence from clusters in Anambra state. *International Journal of Entrepreneurial Behavior & Research, 27*(2), 416–433. https://doi.org/10.1108/IJEBR-11-2019-0640

Ekesiobi, C., Kalu, U. D., & Nwokolo, C. (2018). Industrial clusters and industrialization in Nigeria: A micro- assessment of the Nnewi automotive component industrial cluster, Anambra State. *The Nigerian Journal of Economic and Social Studies, 60*(3), 131–162.

Eruemegbe, G. O. (2015). Impact of business environment on organization performance in Nigeria—A case study of Union Bank of Nigeria. *European Scientific Journal*, *Special Ed* (pp. 478–494).

Fate Foundation. (2016). *Mapping study of Nigeria's entrepreneurship ecosystem* (Issue 2).

Feld, B. (2012). *Startup communities: Building an entrepreneurial ecosystem in your city*. John Wiley & Sons, Inc.

Foster, G., Shimizu, C., Ciesinski, S., Davila, A., Hassan, S., Jia, N., & Morris, R. (2013). *Entrepreneurial ecosystems around the globe and company growth dynamics*.

Franca, C. (2014). Business environment and survival of the tourism industry. *Journal of Business and Management, 16*(10), 78–83.

Fredin, S., & Lidén, A. (2020). Entrepreneurial ecosystems: Towards a systemic approach to entrepreneurship? *Geografisk Tidsskrift-Danish Journal of Geography, 120*(2), 87-97. https://doi.org/10.1080/00167223.2020.1769491

Fuller-love, N., & Akiode, M. (2020). Transnational entrepreneurs dynamics in entrepreneurial ecosystems: A critical review. *Journal of Entrepreneurship and Innovation in Emerging Economies, 6*(1), 41–66. https://doi.org/10.1177/2393957519881921

Grigore, A., & Dragan, I. (2020). Towards sustainable entrepreneurial ecosystems in a transitional economy: An analysis of two Romanian city-regions through the lens of entrepreneurs. *Sustainability, 12*(6061), 1–21.

Guerrero, M., Liñán, F., & Cáceres-Carrasco, F. R. (2020). The influence of ecosystems on the entrepreneurship process: A comparison across developed and developing economies. *Small Business Economics*, *August*. https://doi.org/10.1007/s11187-020-00392-2

Iacobucci, D., & Perugini, F. (2021). Entrepreneurial ecosystems and economic resilience at local level. *Entrepreneurship & Regional Development, 33*(9-10), 689-716. https://doi.org/10.1080/08985626.2021.1888318

Isenberg, D. J. (2010). The big idea: How to start an entrepreneurial revolution. *Harvard Business Review*, *88*(6).

Isenberg, D. J. (2011). The entrepreneurship ecosystem strategy as a new paradigm for economic policy: Principles for cultivating entrepreneurships. *The Babson Entrepreneurship Ecosystem Project, 1*(781), 1–13.

Isenberg, D. J. (2016). Applying the ecosystem metaphor to entrepreneurship: Uses and abuses. *The Antitrust Bulletin, 61*(4), 564–573. https://doi.org/10.1177/0003603X16676162

Jegede, O., & Nieuwenhuizen, C. (2021). Assessing the entrepreneurial ecosystem of science, technology, engineering and mathematics (STEM) researchers in Nigeria. *International Journal of Entrepreneurship, 25*(1), 1–20.

Kuckertz, A. (2019). Let's take the entrepreneurial ecosystem metaphor seriously! *Journal of Business Venturing Insights*, *11*(February), e00124. https://doi.org/10.1016/j.jbvi.2019.e00124

Lafuente, E., Szerb, L., & Acs, Z. J. (2018). The entrepreneurship paradox: More entrepreneurs are not always good for the economy—The role of the entrepreneurial ecosystem on economic performance in Africa. *Economic Systems*, 1–46. https://doi.org/10.2139/ssrn.3307617

Leendertse, J., Schrijvers, M. T., & Stam, E. (2020). *Measure twice, cut once. Entrepreneurial ecosystem metrics* (20.56).

London Stock Exchange Group. (2019). *Companies to inspire Africa*.

Mack, E., & Mayer, H. (2016). The evolutionary dynamics of entrepreneurial ecosystems. *Urban Studies, 53*(10), 2118–2133. https://doi.org/10.1177/0042098015586547

Manya, V. O. (2020). *Dynamics of a startup ecosystem in Africa: A case study of Yabacon in Nigeria*. International Institute of Social Studies.

Maroufkhani, P., Wagner, R., & Wan Ismail, W. K. (2018). Entrepreneurial ecosystems: A systematic review. *Journal of Enterprising Communities, 12*(4), 545–564. https://doi.org/10.1108/JEC-03-2017-0025

Mason, C., & Brown, R. (2014). Entrepreneurial ecosystems and growth oriented entrepreneurship. *OECD LEED Programme and the Dutch Ministry of Economic Affairs* (pp. 1–38).

Mckague, K., & Wong, J. (2017). Social franchising as rural entrepreneurial ecosystem development: The case of Krishi Utsho in Bangladesh. *The International Journal of Entrepreneurship and Innovation, 18*(1), 47–56. https://doi.org/10.1177/1465750316686240

Meero, A., Rahiman, H. U., & Rahman, A. A. (2020). The prospects of Bahrain's entrepreneurial ecosystem: an exploratory approach. *Problems and Perspectives in Management*, *18*(4), 402–413. https://doi.org/10.21511/ppm.18(4).2020.32

Moore, J. F. (1993). Predators and prey: A new ecology of competition. *Harvard Business Review*, 75–86.

Mukiza, J., & Kansheba, P. (2020). Small business and entrepreneurship in Africa: The nexus of entrepreneurial ecosystems and productive entrepreneurship. *Small Enterprise Research, 27*(2), 110–124. https://doi.org/10.1080/13215906.2020.1761869

Mukiza, J., Kansheba, P., & Wald, A. E. (2020). Entrepreneurial ecosystems: A systematic literature review and research agenda. *Journal of Small Business and Enterprise Development, 27*(6), 943–964. https://doi.org/10.1108/JSBED-11-2019-0364

Muldoon, J., Bauman, A., & Lucy, C. (2018). Entrepreneurial ecosystem: Do you trust or distrust? *Journal of Enterprising Communities: People and Places in the Global Economy, 12*(2), 158–177. https://doi.org/10.1108/JEC-07-2017-0050

Neumeyer, X., & Corbett, A. C. (2017). Entrepreneurial ecosystems: Weak metaphor or genuine concept? In *The great debates in entrepreneurship* (pp. 35–45). Emerald Group Publishing Limited. https://doi.org/10.1108/S1048-473620170000027005

Nicotra, M., Romano, M., Del, M., & Schillaci, C. E. (2017). The causal relation between entrepreneurial ecosystem and productive entrepreneurship: A measurement framework. *The Journal of Technology Transfer*. https://doi.org/10.1007/s10961-017-9628-2

Nuemeyer, X., & Corbett, A. C. (2017). Entrepreneurial ecosystems: Weak metaphor or genuine concept? In *The Great Debates in Entrepreneurship* (Vol. 27, pp. 35–45). Emerald Group Publishing Limited. https://doi.org/10.1108/S1048-473620170000027005

Nurcahyo, R., Akbar, M. I., & Gabriel, D. S. (2018). Characteristics of startup company and its strategy: Analysis of Indonesia fashion startup companies. *International Journal of Engineering and Technology(UAE), 7*(2), 44–47. https://doi.org/10.14419/ijet.v7i2.34.13908

Obasan, K. A. (2014). The Impact of Business Environment on the Survival of Small Scale Businesses in Nigeria. *International Journal of Management Business Research, 4*(3), 165–170.

Obisi, C., & Gbadamosi, A. A. O. (2016). Nigerian business environment daunting: Challenges and suggested solutions. *International Journal of Scientific Research in Education, 9*(3), 144–150.

Ogunro, V. O. (2014). Nigeria's business environment: Issues challenges and prospects. *International Journal of Academic Research in Business and Social Sciences, 4*(4), 132–138. https://doi.org/10.6007/IJARBSS/v4-i4/770

Oladele, S., & Oladele, F. (2016). New product and emerging business growth in Kwara State. *World Journal of Entrepreneurship, Management and Sustainable Development, 12*(3), 207–227. https://doi.org/10.1108/WJEMSD-09-2015-0038

Oladele, S., Oladele, F., & Laosebikan, J. (2017). Product improvements engagements and emerging business growth. *International Journal of Entrepreneurship, Innovation and Management*, *2*(2&3).

Oluwatobi, S., Oshokoya, D., Uwoghiren, E., Oyebode, A., & Nsofor, C. (2019). Entrepreneurial ecosystem matrix (EEM): A proposed framework for Nigerian universities to become factories for startup companies. *International Journal of Civil Engineering and Technology, 10*(1), 607–622.

Oyeyinka, O. (2017). *Industrial clusters, institutions, and poverty in Nigeria: The Otigba information and communications technology cluster*. Springer International Publishing. https://doi.org/10.1007/978-3-319-41151-4_1

Pathak, S., & Mukherjee, S. (2020). Entrepreneurial ecosystem and social entrepreneurship: Case studies of community-based craft from Kutch, India. *Journal of Enterprising Communities: People and Places in the Global Economy*, 1–25. https://doi.org/10.1108/JEC-06-2020-0112

Pobee, F. (2021). An analysis of the entrepreneurial ecosystem of Malawi: The global entrepreneurship index (GEI) approach. *Journal of Development and Communication Studies, 8*(1), 224–238.

Polbitsyn, S. (2020). The impact of entrepreneurial ecosystem emergence on rural economic development. *The 14th International Days of Statistics and Economics*, 836–844.

Raimi, L., & Yusuf, H. (2020). A critical discourse of EI and CA in emerging economies: The place of Nigeria within the global innovation ecosystems. *Journal of Entrepreneurship and innovation in Emerging Economies*, *0*(0), 1–20. https://doi.org/10.1177/2393957520903625

Raposo, M., Fernandes, C. I., & Veiga, P. M. (2021). We dreamed a dream that entrepreneurial ecosystems can promote sustainability. *Management of Environmental Quality: An International Journal*, 1477–7835. https://doi.org/10.1108/MEQ-01-2021-0010

Rashid, S., & Ratten, V. (2021). Entrepreneurial ecosystems during COVID-19: The survival of small businesses using dynamic capabilities. *World Journal of Entrepreneurship, Management and Sustainable Development*, *2042–5961*. https://doi.org/10.1108/WJEMSD-09-2020-0110

Roundy, P. T. (2016). Start-up community narratives: The discursive construction of entrepreneurial ecosystems. *The Journal of Entrepreneurship, 25*(2), 232–248. https://doi.org/10.1177/0971355716650373

Roundy, P. T. (2017). "Small town" Entrepreneurial Ecosystems: Implications for developed and emerging economies. *Journal of Entrepreneurship in Emerging Economies, 9*(3), 238–262. https://doi.org/10.1108/JEEE-09-2016-0040

Roundy, P. T. (2018). Rust belt or revitalization: Competing narratives in entrepreneurial ecosystems. *Management Research Review, 42*(1), 102–121. https://doi.org/10.1108/MRR-01-2018-0019

Roundy, P. T., & Bayer, M. A. (2018). Entrepreneurial ecosystem narratives and the micro-foundations of regional entrepreneurship. *The International Journal of Entrepreneurship and Innovation*, 1–15. https://doi.org/10.1177/1465750318808426

Roundy, P. T., & Bayer, M. A. (2019). To bridge or buffer? A resource dependence theory of nascent entrepreneurial ecosystems. *Journal of Entrepreneurship in Emerging Economies*, 1–42.

Roundy, P. T., Bradshaw, M., & Brockman, B. K. (2018). The emergence of entrepreneurial ecosystems: A complex adaptive systems approach. *Journal of Business Research, 86*, 1–10. https://doi.org/10.1016/j.jbusres.2018.01.032

Roundy, P. T., Brockman, B. K., & Bradshaw, M. (2017). The resilience of entrepreneurial ecosystems. *Journal of Business Venturing Insights, 8*(11), 99–104. https://doi.org/10.1016/j.jbvi.2017.08.002

Roundy, P. T., & Fayard, D. (2018). Ecosystems: The micro-foundations of regional entrepreneurship. *The Journal of Entrepreneurship, 28*(1), 94–120. https://doi.org/10.1177/0971355718810296

Roundy, P. T., & Fayard, D. (2019). Dynamic capabilities and entrepreneurial ecosystems: The micro-foundations of regional entrepreneurship. *The Journal of Entrepreneurship, 28*(1), 94–120.

Roundy, P. T., & Fayard, D. (2020). Place-based advantages in entrepreneurship: How entrepreneurial ecosystem coordination reduces transaction costs. *Journal of Behavioral and Applied Management*. https://doi.org/10.21818/001c.14184

Scheidgen, K. (2020). Degrees of integration: How a fragmented entrepreneurial ecosystem promotes different types of entrepreneurs. *Entrepreneurship & Regional Development, 33*(1–2), 54–79. https://doi.org/10.1080/08985626.2020.1734263

Sendra-Pons, P., Comeig, I., & Mas-Tur, A. (2022). Institutional factors affecting entrepreneurship: A QCA analysis. *European Research on Management and Business Economics, 28*(3), 100187. https://doi.org/10.1016/j.iedeen.2021.100187

Sheriff, M., & Muffatto, M. (2015). The present state of entrepreneurship ecosystems in selected countries in Africa. *African Journal of Economic and Management Studies, 6*(1), 17–54. https://doi.org/10.1108/AJEMS-10-2012-0064

Shwetzer, C., Maritz, A., & Nguyen, Q. (2019). Entrepreneurial ecosystems: A holistic and dynamic approach. *Journal of Industry-University Collaboration, 1*(2), 79–95. https://doi.org/10.1108/jiuc-03-2019-0007

Sohns, F., & Wojcik, D. (2020). The impact of Brexit on London's entrepreneurial ecosystem: The case of the FinTech industry. *EPA: Economy and Space*, *0*(0), 1–21. https://doi.org/10.1177/0308518X20925820

Spigel, B. (2015). *Edinburgh's entrepreneurial and support ecosystem*. The University of Edinburgh.

Spigel, B. (2017). The relational organization of entrepreneurial ecosystems. *Entrepreneurship: Theory and Practice*, *41*(1), 49–72. https://doi.org/10.1111/etap.12167

Spigel, B., Kitagawa, F., & Mason, C. (2020). A manifesto for researching entrepreneurial ecosystems. *Local Economy, 35*(5), 482–495. https://doi.org/10.1177/0269094220959052

Stam, E. (2015). Entrepreneurial ecosystems and regional policy: A sympathetic critique. *European Planning Studies, 23*(9), 1795–1769. https://doi.org/10.1080/09654313.2015.1061484

Stam, E., & Van de Ven, A. (2021). Entrepreneurial ecosystem elements. *Small Business Economics, 56*(2), 809–832. https://doi.org/10.1007/s11187-019-00270-6

Subrahmanya, M. H. B. (2020). Entrepreneurial ecosystem for tech startups in Bangalore: An exploration of structure and gap. *Journal of Small Business and Enterprise Development, 27*(7), 1167–1185. https://doi.org/10.1108/JSBED-07-2019-0233

Szerb, L., Lafuente, E., Horváth, K., & Páger, B. (2018). The relevance of quantity and quality entrepreneurship for regional performance: The moderating role of the entrepreneurial ecosystem. *Regional Studies*, *0*(0), 1–13. https://doi.org/10.1080/00343404.2018.1510481

Theodoraki, C., & Messeghem, K. (2017). Exploring the entrepreneurial ecosystem in the field of entrepreneurial support: A multi-level approach. *International Journal of Entrepreneurship and Small Business, 31*(1), 47–66.

Theodoraki, C., Messeghem, K., & Rice, M. P. (2017). A social capital approach to the development of sustainable entrepreneurial ecosystems: An explorative study. *Small Business Economics, 51*(1), 153–170. https://doi.org/10.1007/s11187-017-9924-0

Tolstykh, T., Gamidullaeva, L., Shmeleva, N., Wozniak, M., & Vasin, S. (2021). An assessment of regional sustainability via the maturity level of entrepreneurial ecosystems. *Journal of Open Innovation: Technology, Market and Complexity, 7*(5), 1–23.

Torres, P., & Godinho, P. (2021). Levels of necessity of entrepreneurial ecosystems elements. *Small Business Economics*, *May*. https://doi.org/10.1007/s11187-021-00515-3

Tsukanova, T., Morris, M. H., & Shirokova, G. (2017). Student entrepreneurship and the university ecosystem: A multi-country empirical exploration. *European Journal of International Management, 11*(1), 65. https://doi.org/10.1504/ejim.2017.10001679

Van de Ven, A. H. (1993). The development of an infrastructure for entrepreneurship. *Journal of Business Venturing, 8*, 211–230.

Vedula, S., & Kim, P. H. (2019). Gimme shelter or fade away: The impact of regional entrepreneurial ecosystem quality on venture survival. *Industrial and Corporate Change, 28*(4), 827–854. https://doi.org/10.1093/icc/dtz032

Wadee, A. A., & Padayachee, A. (2017). Higher education: Development of an entrepreneurial ecosystem, or … are we the weakest link? *Science, Technology & Society, 22*(2), 1–26. https://doi.org/10.1177/0971721817702290

Wulandari, S. (2021). Designing an assessment model for entrepreneurial growth using a hybrid method. *Advances in Engineering Research, 201*, 421–427.

Wurth, B., Stam, E., & Spigel, B. (2021). Toward an entrepreneurial ecosystem research program. *Entrepreneurship Theory and Practice, 00*, 1–50. https://doi.org/10.1177/1042258721998948

Xie, X., Xie, X., & Martínez-climent, C. (2019). Identifying the factors determining the entrepreneurial ecosystem of internet cultural industries in emerging economies. *International Entrepreneurship and Management Journal, 1–20*. https://doi.org/10.1007/s11365-019-00562-z

Xu, Z., & Dobson, S. (2019). Challenges of building entrepreneurial ecosystems in peripheral places. *Journal of Entrepreneurship and Public Policy, 8*(3), 408–430. https://doi.org/10.1108/JEPP-03-2019-0023