



ORIGINAL RESEARCH PAPER

Social Science

BUILDING ATLANTIS IN AIR: PHILOSOPHICAL CRITIQUE OF THE CONCEPT OF “ENTREPRENEURIAL ECOSYSTEMS”

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ABSTRACT

Both academic and practitioner-oriented literature has embraced the metaphor of Entrepreneurial Ecosystems (EEs) to describe spatial concentrations of economic activity and advocates prescriptions to build them. While building EEs has in the recent years been the holy grail of public policy across the globe, the effort has seldom met with intended success. However, the philosophical underpinnings and possible consequences of the choice of such metaphor remain unexplored. This conceptual paper adopts a philosophical gaze to review the philosophical origins of the metaphor, to critique the ontological, epistemological and teleological assumptions that are made to facilitate the choice of this metaphor and investigates how the metaphor has impacted research around the concept.

INTRODUCTION

“What then is truth? A moveable host of metaphors, metonymies, and anthropomorphisms: in short, a sum of human relations which have been poetically and rhetorically intensified, transferred, and embellished, and which, after long usage, seem to a people to be fixed, canonical, and binding.” (Nietzsche, 1873)

For anyone wanting to understand how entrepreneurial activity operates in the socio-economic milieu within which it is embedded, the closest theoretical notion that the literature presents today is that of “Entrepreneurial Ecosystems (EEs)”. The popularity it enjoys stems from the fact that the notion of an EE has gained currency in policy circles—it is a widely used trope to anchor policy deliberations and public discourse (cf. Isenberg, 2010; OECD, 2014; World Economic Forum, 2014).

However, the philosophical foundations of the metaphor of ecosystem as employed in EEs is not investigated. How did the metaphor come to be? What are the lineages of the concept? How does the underlying ontological and epistemological assumptions in employing the metaphor affect theorizing and explanation of the phenomenon of spatially clustered economic activity? We adopt a philosophical gaze at the extant literature on EE to answer some of these questions.

To this end, we initially offer a review of the concept and its historical lineage. Then we critically analyse the evolution of the notion of ecosystem in natural science and its employment as a metaphor in business research. We review how the concept has been adopted by researchers within different paradigms and at what has been the effect of such adoption across paradigms in terms of theorization, explanations and methodology. Finally, we reflect on the teleological assumptions of the concept and its manifestation in the use and abuse of the metaphor.

1. Concept of Entrepreneurial Ecosystems (EEs)

Despite its interdisciplinary roots, the commonly shared belief that allows for the concept of “Entrepreneurial Ecosystems” (EEs) is that there are certain attributes which exist outside the firm but within the region which contribute to the competitiveness of the economy (Spigel, 2017). The three primary traditions which have shaped and debated the relative importance of the firm and the different attributes outside the firm are: Regional Development and its variants like economic geography whose focal concern is the development of the region, Strategy whose focal concern is the competitiveness of the firm globally and not limited to a region, and Entrepreneurship whose focal concern is the entrepreneur (Acs et al., 2017).

a. Legacy – Regional Development

The regional development literature dates back its interest in the spatial agglomeration of economic activity to the 1800s when Marshall studied industrial concentrations in Victorian England and found that spatial co-location with firms in same sector accorded pecuniary and non-pecuniary advantages. These “industrial districts” facilitated specialization through knowledge spillover—specialized pools of human capital, specialist suppliers, specialist infrastructure and the like, which could further the agglomeration of firms in the same sector (Marshall, 1890).

The interest in regional development waned with the emergence of neo-classical economics till the post war era. It was as late as 1969 when Jane Jacobs revived an interest in regions by proposing her diversification thesis—knowledge spill over leads to diversification within a region and the local competitiveness acts as an incentive to engage in innovation (Jacobs, 1969).

Building on Jacob's insights, the notion of “Regional innovation systems (RIS)” came into existence which referred to the networks and institutions linking knowledge producing hubs with innovative firms within a region. The linkages facilitated by the RIS allowed knowledge spill over across the region leading to an increase in its innovativeness (Cooke et al., 1997).

The specialization thesis of Marshall later got currency when it was expanded into the “cluster approach” where “geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (...) in particular fields” compete and cooperate (Porter, 1998).

b. Legacy – Strategy Research

The strategy literature was the one to introduce the metaphor of “ecosystem” where the notion of “business ecosystem” emerged (Moore, 1993). In this stream, business ecosystem is visualized as a form of economic coordination in which a firm's ability to create and appropriate value critically depends on different groups of actors that produce complementary products or services (Adner & Kapoor, 2010; Iansiti & Levien, 2004). The group of actors or partners include several groups of stakeholder firms such as component suppliers, rival firms, complementors, buyers, user communities, and universities (Acs et al., 2017).

Further, the literature distinguishes between “ecosystem as affiliation” where ecosystems are seen as “communities of associated actors defined by their networks and platform affiliations” and “ecosystem as structure” where ecosystems

are “configurations of activity defined by a value proposition” (Adner, 2017).

In the affiliation school, the focus is largely on partners who are required to be aligned with the focal firm to increase effectiveness of the performance of the firm and its partners. Hence, it is “characterized by a large number of loosely interconnected participants who depend on each other for their mutual effectiveness and survival” (Iansiti & Levien, 2004). In the structure school, the focus is on the creation of a common value proposition for both the focal firm and the partners. Hence, it is characterized as “the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialize” (Adner, 2017).

c. Legacy – Entrepreneurship Research

In the late 80s, the systemic view of Entrepreneurship emerged which suggested that the act of setting up enterprises be studied more holistically since entrepreneurship does not happen in isolation, but it happens within “environments” characterized by the presence of business and role models, business friendly policy, strong infrastructure, diverse economy, available capital and supportive culture (Dubini, 1989). This was followed up by efforts to theorize on “how the risk, time, and cost to an individual entrepreneur are significantly influenced by developments in the overall infrastructure for entrepreneurship” thereby urging entrepreneurs to collaborate with different actors within the larger environment—“run in packs” (Van de Ven, 1993).

Further this systemic view adopted the notion of “entrepreneurial system” which considered the complexity and diversity of actors, roles and environmental factors which interact to determine the performance of the region (Spilling, 1996). The metaphor of ecosystem was introduced by Cohen (2006) who defined an EE as ‘... an interconnected group of actors in a local geographic community committed to sustainable development through the support and facilitation of new sustainable ventures’. Since then the metaphor has snowballed to create a large literature.

Case studies of various entrepreneurial ecosystems across different countries have shown the importance of supportive culture which normalizes and encourages entrepreneurship, innovation and risk-taking, prominent local examples of successful entrepreneurial ventures, (Isenberg, 2010; Roundy, Brockman, & Bradshaw, 2018; Saxenian, 1996; Stam, 2014, 2015), availability of diverse human and financial capital, supportive infrastructure and markets, knowledge spill over across universities and research institutions (Owen-Smith & Powell, 2004; Stam & Spiegel, 2016). Thus, the common features that this literature on EEs identifies can be grouped into: (a) cultural attributes, (b) social attributes and (c) material attributes (Spiegel, 2017).

The review of the lineage of the notion of EE shows the changing metaphors with time to study spatial concentration of economic activity. It could be seen as a reflection of the “socio-cultural situatedness” (Frank et al., 2008) of the activity. While business was at one point a “cluster” of social life, has it pervaded all parts of social life in the present times to engulf into a “ecosystem” (cf. Spinosa et al., 1999)?

Ontological and Epistemological Assumptions

Approaches to social science theorization have to necessarily take a standpoint on questions of ontology and epistemology which in turn will have consequences on the methodology adopted to study the phenomenon of interest (Burrell & Morgan, 1979). Since the phenomenon of interest here owes its origin to natural sciences, I discuss the evolution of the idea of “ecosystem” in natural sciences and then discuss how borrowing the metaphor has shaped the ontological and

epistemological assumptions in the case of EEs.

a. “Ecosystem” in the case of Natural Ecosystems

The notion of ecosystem comes from natural sciences, etymologically by the shortening of the phrase “ecological system”. In his 1935 review aptly titled “The Use and Abuse of Vegetational Concepts and Terms”, Tansley brought together two rival schools of thought in ecological studies—the organicists led by Clements and the individualists led by Gleason (Lévêque, 2003). The organicists viewed the entire system holistically as a single organism where different components worked as part of the whole towards the health of the whole. The individualists proposed that the natural communities of species were random groupings which while sustaining themselves coincidentally contributed to the whole.

Tansley refined and synthesized these views to come up with the term ‘ecosystem’ as conscious recognition of the “inorganic factors” which make up the system in which we live, where otherwise the “natural human prejudice is to consider the organisms as the most important part of the system” (Tansley, 1935; pg 299). Building on Tansley over the years, an ecosystem has come to be defined as “a physically locatable and quantifiable community formed by a system of energy exchange between the living, the dead, and the never-living where, when energy animates the system, there is an exchange of energy-material between the living and the dead” (Smith, 2013).

To Tansley, the purpose of isolating any system like the ecosystem is to serve as a mental tool to facilitate the study. He acknowledged that “the systems we isolate mentally are not only included as parts of larger ones, but they also overlap, interlock and interact with one another. The isolation is partly artificial, but is the only possible way in which we can proceed [with the study]” (Tansley, 1935; pg 300). In the perception prevalent in the natural sciences, the ecosystems are systems which “develop gradually, steadily becoming more highly integrated and more delicately adjusted in equilibrium”, where “their normal autogenic succession is a progress towards greater integration and stability” (Tansley, 1935; pg 300).

At the level of its natural science counterpart itself, the notion of “ecosystem” runs into questions of ontological and epistemological assumptions. In a footnote, Tansley makes an observation to this effect: “The mental isolates we make are by no means all coincident with physical systems, though many of them are, and the ecosystems among them” (Tansley, 1935; Footnote 4, pg 300). Is there an “ecosystem” that exists out there which can be objectively perceived, and its characteristic features identified? Or is it merely a conceptual isolation that aids scientific investigation? How do we know what are the boundaries of the ecosystem even if it is an empirical reality which exists independent of the researcher?

The fields of research associated with life forms grappled with these questions and formalized the “Environment Ontology (ENVO)” consortium to “provide a controlled, structured vocabulary that is designed to support the annotation of any organism or biological sample with environment descriptors” (Buttigieg et al., 2013, 2016). In line with the instructions of ENVO, an ecosystem is a sub-class under the class of “environmental system”. It is described as “an environmental system which includes both living and non-living components” and this sub-class “will be primarily filled by inference, any environmental system which necessarily includes living parts should be auto-classified here.”

Thus, in essence, the “ecosystem” in natural sciences is a reference or mental tool employed by the researcher to the conceptualization of an interacting system of biotic and

abiotic components which though in reality do not exist as an isolated system. The correspondence to reality is a messy, non-distinctively identifiable, continuous overlapping ecosystems from the smallest within our body to the largest being the entire earth (Smith, 2013).

b. “Ecosystem” in the case of Entrepreneurial Ecosystems

The first import of the notion of “ecosystem” to business studies was by Moore (1993). When he introduced the idea of a business ecosystem, he provided an elaborate description for the same:

“An economic community supported by a foundation of interacting organizations and individuals – the organisms of the business world. This economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organism also include suppliers, lead producers, competitors, and other stakeholders. Over time, they coevolve their capabilities and roles, and tend to align themselves with the direction set by one or more central companies. Those companies holding leadership roles may change over time, but the function of ecosystem leader is valued by the community because it enables members to move toward shared visions to align their investments, and to find mutually supportive roles.” (Moore, 1996)

The “business ecosystem” of Moore is a “mental isolation” like that of Tansley but unlike the natural ecosystems it is a selective isolation and not bounded by geography. The suppliers and focal firms whom Moore calls leaders need not be located in the same region. Its real-world correspondence could be a possible conscious or unconscious sense of belongingness among the actors to an ecosystem, though it is not a necessary criterion. As long as the economic functions are carried on through the coordination among the presumed members of the ecosystem the notion works as a useful mental isolation for the researcher to study the phenomena.

When the metaphor further got imported to entrepreneurship as entrepreneurial ecosystems, the correspondence to reality was stronger than business ecosystems since the notion represented a spatial co-location element. In its most elaborate description, an EE is –“a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (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.” (OECD, 2014)

Though the description of EE in this formulation stresses both the formal and informal interactions across the actors of the ecosystem, most research has chosen to privilege the formal at the cost of the informal. This selective focus on certain aspects of the phenomena is inevitable as the phenomena is complex and to analyse or study it in all its messy glory is impossible. This necessitates that the researcher makes certain assumptions to facilitate the investigation of her question of interest. The next section discusses the assumptions that researchers have made and the consequences of such assumptions on theorizing, explanation and methodology.

Paradigms Under Which Research in EEs is Conducted

The paradigms proposed by Burrell & Morgan (1979) are useful to discuss the meta-theoretical assumptions that facilitate the social-scientific reality underlying theorizations in the social sciences.

In line with the larger work in Social Sciences, the theorizing on EEs too lies predominantly within the functionalist paradigm. Despite the metaphor of 'ecosystem' allowing for the conceptualization of change and evolution, most of the studies have concerned themselves with teasing out the essential characteristics which make the ecosystem entrepreneurial (Stam, 2015). This approach arises from a position which is realist, positivist, determinist and nomothetic.

Though the functionalists take the existence of an EE to be an objective reality, they have not laid out exact procedure to identify a particular spatial concentration as an EE. Their approach of studying an existing EE and drawing normative recommendations to make other regions entrepreneurial is possible only if they believe that nomothetic laws for such ecosystem design exist and can be discovered (Isenberg, 2010, 2016).

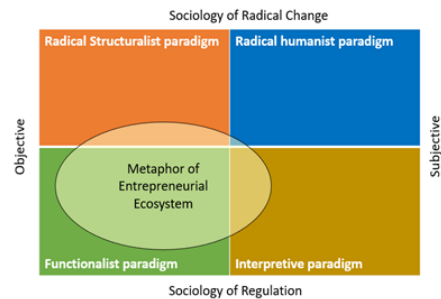


Figure 1. The Metaphor of Entrepreneurial Ecosystems and the paradigms under which it has been employed in extant literature (Paradigms adopted from Burrell and Morgan (1979))

Drawing on Hempel's models of explanation (Hempel & Oppenheim, 1948), most of the explanations offered by extant research in the functionalist paradigm are either deductive-nomothetic based on case studies and detailed interviews (Spigel, 2017; Spigel & Harrison, 2018) or inductive-statistic based on large sample data analysis which explore the impact of actions of one actor on another (Owen-Smith & Powell, 2004).

Researchers who are rooted in the interpretive paradigm have construed EEs as social constructions by actors through narratives and other tropes (Read, 2016; Roundy, 2016). They have investigated how such a social construction occurs across such large communities. However, the research on this is nascent and the possibility of identity formation of entrepreneurs as part of an EE is yet to be explored. Researchers who have adopted an ideographic position may choose to study EEs from up close which allows for contextual and historical explanations through methods suited for process studies.

The problem of historical and geographic specificity (Hodgson, 2002) according to which every EE is unique in terms of its geography and history is not addressed by extant research. Most of the definitions of EE within the functionalist paradigm take a static view where the ecosystem is functioning at an equilibrium stage unlike cluster approach which took an evolutionary view. A radical structuralist paradigm may facilitate such approach with its focus on change than on equilibrium. The ecosystem approach of studying a successful EE at one phase of its evolution rather than taking a process view has limited its methodological tools to case studies and large-scale data analysis to investigate causal effects and an evolutionary perspective might address this lacunae (Mack & Mayer, 2016).

The privileging of the entrepreneur over others within the EE is a defining feature of EEs (Acs et al., 2017). The reification of

entrepreneurship (Ogbor, 2000) within public discourse has changed power dynamics within society and further politicized the interaction between government and business (Coen et al., 2010), altered gender perceptions in society and the ecosystem (Ahl, 2006). A structural humanist paradigm has been very rarely adopted in the extant literature and it would be best suited to explore these questions.

While this section reviewed the paradigm positions that have been adopted in the extant literature, the next section reviews what teleological assumptions have been made and consequently how the metaphor of ecosystem has been employed in the literature.

Teleological Assumptions: Use And Abuse Of The Metaphor

A metaphor is an “useful fiction” for dealing with the world and is at a fundamental level “a creative form which produces its effects through a crossing of images” (Morgan, 1980). It serves to generate new meaning through the processes of comparison, substitution and interaction between the images of the subject of interest and the metaphor that is employed to describe it (Black, 1962). As Morgan (1980) explicates, the puzzle-solving kind of scientific research is based “upon attempts to discover the extent to which features of the metaphor are found in the subject of inquiry” with attempts to “examine, operationalize, and measure detailed implications of the metaphorical insight”. This kind of research requires an “irrational commitment” to the metaphor since no metaphor is entirely true and necessarily partial, but the strength of an effective metaphor is in its ability to rely on “constructive falsehood” to “liberate imagination” (Morgan, 1980). The metaphor we employ is usually reflective of the functional end that we associate with the phenomena for which the metaphor is used (Herrera-Soler & White, 2012).

What makes the metaphor of ecosystem powerful is that an ecosystem is self-regulating —“weeds out inefficiencies and maintains interactions in which more and more member parts have more and more of their needs satisfied”, self-organizing—“evolved naturally without any centralized intention” and self-sustaining—“one part produces the resources required by another part”; but without agents being self-aware of such consequences of their activities (Isenberg, 2016). How far can these features be expected from an EE and what are the consequences of not investigating the compatibility of these foundational assumptions?

The similarities between natural ecosystems and EEs lie in the spatial co-location aspect, interaction of diverse stakeholders, unintended beneficial spill over effects. Despite such interesting similarities between both EEs and natural ecosystems, the EE literature has not explored the interactions of EE components and has been disproportionately actor centric unlike natural ecosystems which study the interactions explicitly (Kuckertz, 2019; Roundy, 2016). The only output of interest in the case of EE has been entrepreneurial activity despite studies showing that the impact of an EE is multidimensional – economic, technological and societal (Audretsch et al., 2019). While the ecosystem metaphor promises the “potential of developmental, evolutionary, and longitudinal perspectives that adequately account for the variety of potential outputs”, the EE literature has limited itself to largely static, descriptive studies that clarify what components might constitute an EE (Kuckertz, 2019).

However, the EE has conscious agents who are aware they can impact the ecosystem (Roundy et al., 2017) and in fact some of them proactively experiment in shaping the EE (Read, 2016), while some of them could be perceived to be not active in shaping the ecosystem despite being so (Mazzucato, 2015). The intentionality of actors is a major difference between the natural ecosystem and EE. Without reflecting on the absence

of intentionality in ecosystems, can one rhetorically claim to create an “ecosystem”? A lack of reflection on the choice of metaphors in social science can turn out to be costly (Herrera-Soler & White, 2012).

The borrowing of the ecosystem metaphor from the “business ecosystem” of strategy research and not directly from the natural ecosystems of natural science could be a reason why the intentionality dimension has received less attention. The teleological agenda in strategy is to improve the performance of the focal firm and hence the focus is not on designing the ecosystem but on creating value propositions that benefit the partnerships that constitute the ecosystem (Adner, 2017). Hence, actors within this perspective of ecosystem are theorized to act so as to maximize their benefits, thereby bestowing intentionality to actors. But this intentionality is not far away from the way natural species act in an ecosystem – in favour of their own survival. Whereas, the teleological agenda in the case of EEs has a legacy of regional development, reflective in the normative research to build the next Silicon Valley (cf. Isenberg, 2010). The lack of philosophical reflection on this intentionality mismatch in the metaphor and the phenomenon has led to over interference in the form of designing, building and replicating EEs, with little success (Isenberg, 2016; Shane, 2009).

CONCLUSION

In a provocative essay, (Feyerabend, 1998) argues for co-existence of multiple alternative theoretical perspectives as against the consistency and dominance of a single theoretical perspective. As we trace the evolution of the notion of EEs, we find that probably due to its interdisciplinary origins the concept has evolved and co-exists with other concepts like industrial clusters, regional innovation systems, business ecosystems. While the multiplicity of theoretical constructs is a major criticism against the study of spatial concentration of economic activity, the strength of this multiplicity in bringing to attention different insights should be noted.

The cluster approach while focussed on knowledge spill over mechanisms, the RIS approach is centred on importance of institutions in the ecosystem, the business ecosystem approach is concerned with value creation and partnerships, the EE approach is concerned with entrepreneur and his interactions with different actors and the ecosystem itself. The focus on the individual in EE approach allows it to also take interpretivist, radical humanist and radical structuralist stances besides the functionalist stance. This makes it possible to explore questions at micro and meso levels unlike cluster and RIS approach which are more suited to answer macro questions of regional development.

Further, the dynamic view of evolution in regional development had allowed for the study of path dependence. As discussed, this approach had been sensitive to ideographic explanations given the historic and geographic specificity of every region. History friendly methods borrowed from that legacy and adopted to EEs can facilitate a long durée perspective to explore the evolution and resilience of EEs within a radical structuralist paradigm sensitive to change. While statistical large data-set analysis methods can continue to be adopted to explore the causal impact of interactions across specific actors within EEs over time within a functionalist paradigm.

Despite the advantages that the ecosystem metaphor offers to advances our understanding of spatial clustering of economic activity, a conscious reflection of the philosophical foundations of the concept can refine it further.

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