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Entrepreneurial Ecosystems and Regional Policy: A Sympathetic Critique

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Abstract *Regional policies for entrepreneurship are currently going through a transition from increasing the quantity of entrepreneurship to increasing the quality of entrepreneurship. The next step will be the transition from entrepreneurship policy towards policy for an entrepreneurial economy. The entrepreneurial ecosystem approach has been heralded as a new framework accommodating these transitions. This approach starts with the entrepreneurial actor, but emphasizes the context of productive entrepreneurship. Entrepreneurship is not only the output of the system, entrepreneurs are important players themselves in creating the ecosystem and keeping it healthy. This research briefing reviews the entrepreneurial ecosystem literature and its shortcomings, and provides a novel synthesis. The entrepreneurial ecosystem approach speaks directly to practitioners, but its causal depth and evidence base is rather limited. This article provides a novel synthesis including a causal scheme of how the framework and systemic conditions of the ecosystem lead to particular entrepreneurial activities as output of the ecosystem and new value creation as outcome of the ecosystem. In addition it provides a framework for analysing the interactions between the elements within the ecosystem. This offers a much more rigorous and relevant starting point for subsequent studies into entrepreneurial ecosystems and the regional policy implications of these.*

Keywords: entrepreneurial ecosystems; entrepreneurship; regional policy; economic policy

1. Introduction

Since the path-breaking work by Birch (1979, 1987), many regional policies have been aimed at increasing the prevalence of new and small firms (see e.g. Fischer & Nijkamp, 1988; Sternberg, 2012). However, recent empirical work has shown that it is not new or small firms per se, but especially a rather narrow group of ambitious entrepreneurs that is important for economic growth (Wong *et al.*, 2005; Stam *et al.*, 2009, 2011). Ambitious entrepreneurs are individuals exploring opportunities to discover and evaluate new goods

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and services and exploit them in order to add as much value as possible (Stam *et al.*, 2012). That means more than just "being your own boss" or "pursuing self-fulfilment" through one's own business. Ambitious entrepreneurs are entrepreneurs who attach importance to performing (more than) well with their business (Stam *et al.*, 2012). In practice, ambitious entrepreneurs are more likely to achieve substantial firm growth, innovation or internationalization than the "average" entrepreneur. What does economic policy have to do with this? Ambitious entrepreneurship can be interpreted as the basis of a Schumpeterian variation on traditional welfare theory, where new value creation is at the centre (Schumpeter, 1934). This recognition of the importance of ambitious entrepreneurship has triggered a transition in policy attention from pushing up the quantity of entrepreneurship (e.g. new firms and self-employment) to pushing up the quality of entrepreneurship (e.g. growth and innovation-oriented entrepreneurship). This transition also necessitates a shift in thinking about the rationales for policy. At the beginning of the twentieth century, economists mainly looked at how the economic system affects value creation. In this case, the word "system" refers to the way production, distribution and consumption of goods and services are organized within society, which consists of people and institutions—including their relationship to the means of production. But gradually the economics perspective has been reduced to examining the extent to which markets function optimally, in order to reach the maximum (allocative) efficiency. Or, in policy language: is this a case of market failure? The textbook "rationales" for government intervention are externalities, abuse of market power, public goods and asymmetric information.

Markets are an important mode of governance in economic systems. And in the context of innovation and entrepreneurship, the failure of that mode of governance may also be a reason for government intervention (see e.g. Jacobs & Theeuwes, 2005). This mode of governance, however, also has substantial constraints for innovation and entrepreneurship policies (Nooteboom & Stam, 2008). Market failure plays a role, but not everything in the innovation system can be reduced to market contexts: the non-market interaction is seen not only as market failure, but often also as a necessity for the realization of innovations (Teece, 1992). For innovation and knowledge sharing in general, especially non-codified knowledge, informal interaction is of great importance. Cooperation makes it possible to exchange much more knowledge than can be specified contractually. This was the reason to create a wider framework for this type of policies: the innovation system approach. The focus of this approach is the so-called system failure: the lack of sufficient elements in the innovation system (e.g. certain types of financing or knowledge), or a non-optimal interaction between these elements (e.g. between companies and knowledge institutes). An innovation system works well if there is a sufficient variety of organizations that fulfil the required functions in such an innovation system, and as a result create an optimal interaction between these elements. The innovation system approach examines organizations and their interaction, and not only through market interaction, but also otherwise. However, in the innovation system approach, the role of entrepreneurs remains a "black box", just like in the market failure approach, for that matter. This makes an alternative view desirable. A new approach, called the entrepreneurial ecosystem approach, appears to be able to solve the shortcomings of the market failure approach and the system failure approach, and seems equally applicable to the policy of ambitious entrepreneurship. What this ecosystem approach includes and how it can be of importance for (new) entrepreneurship policy are the subject of this article.

2. The Entrepreneurial Ecosystem Approach

The entrepreneurial ecosystem approach has only occurred during the last five years. There is not yet a widely shared definition. The first component of the term is "entrepreneurial" and refers to entrepreneurship, a process in which opportunities for creating new goods and services are explored, evaluated and exploited (Shane & Venkataraman, 2000). Generally formulated, entrepreneurship includes the process by which individuals exploit opportunities for innovation (Schumpeter, 1934). The entrepreneurial ecosystem approach often narrows this entrepreneurship down to "high-growth start-ups", claiming that this type of entrepreneurship is an important source of innovation, productivity growth and employment (Mason & Brown, 2014; World Economic Forum, 2013). Empirically, this claim seems too exclusive: innovative start-ups or entrepreneurial employees can also be forms of productive entrepreneurship (Baumol, 1990) and in that way the source of earlier mentioned welfare outcomes. But it is clear that the entrepreneurial ecosystem approach does not by definition include the traditional statistical indicators of entrepreneurship, such as "self-employment" or "small businesses", into entrepreneurship. This distinction between the traditional measures of entrepreneurship and the conceptually more adequate measures of entrepreneurship, such as innovative and growth-oriented entrepreneurship, is increasingly emphasized in the entrepreneurship literature (Shane, 2009; Stam *et al.*, 2012; Henrekson & Sanandaji, 2014).

The second component of the term is "ecosystem". The biological interpretation of this concept, in which the interaction of living organisms with their physical environment is at the centre, is obviously not to be taken too literally within the context of entrepreneurial ecosystems. The entrepreneurial ecosystem concept emphasizes that entrepreneurship takes place in a community of interdependent actors. More particularly, the literature on entrepreneurial ecosystems focuses on the role of the (social) context in allowing or restricting entrepreneurship, and in that sense is closely connected to other recent "systems of entrepreneurship" approaches (Sternberg, 2007; Ylinenpää, 2009; Acs *et al.*, 2014; Levie *et al.*, 2014), which aim to bridge the innovation system approach and entrepreneurship studies.

What the entrepreneurial ecosystem approach has in common with other established concepts—such as clusters, industrial districts, innovation systems and learning regions—is the focus on the external business environment. The approach differs from these concepts by the fact that the entrepreneur, rather than the enterprise, is the focal point. The entrepreneurial ecosystem approach thus begins with the entrepreneurial individual instead of the company, but also emphasizes the role of the entrepreneurship context.

Another significant distinction from other economic policy approaches is that the entrepreneurial ecosystem approach not only sees entrepreneurship as a result of the system, but also sees the importance of entrepreneurs as central players (leaders) in the creation of the system and in keeping the system healthy. This "privatization" of entrepreneurship policy decreases the role of government compared to previous policy approaches—which does not alter the fact that this role maintains its importance, but rather as a "feeder" of the ecosystem than as a "leader" (Feld, 2012). Entrepreneurs with a long-term commitment to the ecosystem are often best positioned to recognize the opportunities and restrictions of the ecosystem, and to deal with them, together with the "feeders" of the ecosystem (such as professional service providers and the financial infrastructure). The government can

play an important role as a "feeder", for example in adjusting laws and regulations. Market failures and system failures are not necessarily rationales for government intervention: even here, entrepreneurs can find opportunities, for example by lifting information asymmetry and organizing collective action to create public goods.

The recent popular literature on entrepreneurial ecosystems is directly aimed at the key stakeholders of the ecosystem, mainly entrepreneurial leaders and policy-makers, and not so much at an academic audience. It speaks directly to practitioners, but its causal depth and evidence base is rather limited. The recent entrepreneurial ecosystem literature provides several lists of factors which are deemed to be important for the success of an entrepreneurial ecosystem. Naturally, entrepreneurs (being visible and connected) are considered to be the heart of a successful ecosystem, but successful entrepreneurial ecosystems have nine attributes (Table 1).

Next to the key role of entrepreneurs themselves (in leading the development of the ecosystem and as mentors or advisors), the nine attributes by Feld (2012) emphasize the interaction between the players in the ecosystem (with high network density, many connecting events and large companies collaborating with local start-ups) and access to all kinds of relevant resources (talent, services and capital), with an enabling role of government at the background.

Isenberg (2010) also discusses the concept of the entrepreneurial ecosystem. He notes that there is no exact formula for the creation of such an ecosystem, but that (public)

Table 1. Nine attributes of a successful start-up community

Attribute	Description
Leadership	Strong group of entrepreneurs who are visible, accessible and committed to the region being a great place to start and grow a company
Intermediaries	Many well-respected mentors and advisors giving back across all stages, sectors, demographics and geographies as well as a solid presence of effective, visible, well-integrated accelerators and incubators
Network density	Deep, well-connected community of start-ups and entrepreneurs along with engaged and visible investors, advisors, mentors and supporters. Optimally, these people and organizations cut across sectors, demographics and culture engagement. Everyone must be willing to give back to his community
Government	Strong government support for and understanding of start-ups to economic growth. Additionally, supportive policies should be in place covering economic development, tax and investment vehicles
Talent	Broad, deep talent pool for all levels of employees in all sectors and areas of expertise. Universities are an excellent resource for start-up talent and should be well connected to community
Support services	Professional services (legal, accounting, real estate, insurance and consulting) are integrated, accessible, effective and appropriately priced
Engagement	Large number of events for entrepreneurs and community to connect, with highly visible and authentic participants (e.g. meet-ups, pitch days, start-up weekends, boot camps, hackathons and competitions)
Companies	Large companies that are the anchor of a city should create specific departments and programmes to encourage cooperation with high-growth start-ups
Capital	Strong, dense and supportive community of venture capitalists, angels, seed investors and other forms of financing should be available, visible and accessible across sectors, demographics and geography

Source: Feld (2012, pp. 186–187).

leaders should follow nine principles when building an entrepreneurial ecosystem. These principles emphasize the role of local conditions and bottom-up processes (1: Stop emulating Silicon Valley; 2: Shape the ecosystem around local conditions; 3: Engage the private sector from the start; 4: Stress the roots of new ventures; 5: Do not over-engineer clusters; help them grow organically), emphasize ambitious entrepreneurship (6: Favour the high potentials; 7: Get a big win on the board) and institutions (8: Tackle cultural change head-on; 9: Reform legal, bureaucratic and regulatory frameworks). These principles are claimed to lead to "venture creation", the "creation of an ecosystem" and a "vibrant business sector" (Isenberg, 2010). It is unclear how the causal mechanisms work to realize these different results. Even though this might be a practitioner's point of view, the emphasis on the role of local conditions and bottom-up processes is largely in line with recent academic work on regional innovation and growth (cf. Boschma & Martin, 2010; Cooke *et al.*, 2011), while the focus on ambitious entrepreneurship and institutions is also a key feature of recent academic entrepreneurship research (Henrekson & Johansson, 2009; Stam *et al.*, 2012).

Isenberg (2011) lists six distinct domains of the ecosystem: policy, finance, culture, support, human capital and markets. This largely overlaps with the previously mentioned attributes and the eight pillars in Table 2, as listed by the World Economic Forum (2013) for a successful ecosystem, each with a number of components. These pillars also focus on the presence of key factors (resources) such as human capital, finance and services; the formal ("government & regulatory framework") and informal institutions ("cultural

Table 2. Entrepreneurial ecosystem pillars and their components

Pillar	Components
Accessible markets	Domestic market: large/medium/small companies as customers and governments as customer Foreign market: large/medium/small companies as customers and governments as customer
Human capital/workforce	Management talent, technical talent, entrepreneurial company experience, outsourcing availability and access to immigrant workforce
Funding & finance	Friends and family, angel investors, private equity, venture capital and access to debt
Support systems/mentors	Mentors/advisors, professional services, incubators/accelerators and networks of entrepreneurial peers
Government & regulatory framework	Ease of starting a business, tax incentives, business-friendly legislation/policies, access to basic infrastructure, access to telecommunications/broadband and access to transport
Education & training	Available workforce with pre-university education, available workforce with university education and those with entrepreneurship-specific training
Major universities as catalysts	Promoting a culture of respect for entrepreneurship, playing a key role in idea-formation for new companies and playing a key role in providing graduates to new companies
Cultural support	Tolerance for risk and failure, preference for self-employment, success stories/role models, research culture, positive image of entrepreneurship and celebration of innovation

Source: World Economic Forum (2013, pp. 6–7).

support") enabling entrepreneurship and finally, access to customers in domestic and foreign markets.

The listed attributes, principles and pillars show that the entrepreneurial ecosystem approach contains a shift in traditional economic thinking about businesses, and especially on markets and market failure, to a new economic view on people, networks and institutions. The common denominator appears to be the fact that entrepreneurs create new value, organized by a wide variety of governance modes, enabled and confined within a specific institutional context. This does not mean that companies and markets (and market failure) are irrelevant. But markets and companies are governance modes which, like all other forms of governance, will always be imperfect. Moreover, entrepreneurship is often about companies and markets "in the making", and not about situations that come close to a "fully efficient market equilibrium", as in the ideal of the market failure approach.

3. Shortcomings of the Entrepreneurial Ecosystem Approach

The mere popularity of the entrepreneurial ecosystem approach is by no means a guarantee of its profundity. Seductive though the entrepreneurial ecosystem concept is, there is much about it that is problematic, and the rush to employ the entrepreneurial ecosystem approach has run ahead of answering many fundamental conceptual, theoretical and empirical questions. The phenomenon at first appears rather tautological: entrepreneurial ecosystems are systems that produce successful entrepreneurship, and where there is a lot of successful entrepreneurship, there is apparently a good entrepreneurial ecosystem. Such tautological reasoning ultimately offers little insight for public policy. Second, the approach as yet provides only long laundry lists of relevant factors without a clear reasoning of cause and effect. These factors do provide some focus, but they offer no consistent explanation of their coherence or their interdependent effects on entrepreneurship—and, ultimately, on aggregate welfare. And third, it is not clear which level of analysis this approach is targeting. Geographically, it could be a city, a region or a country. It can also be other systems, less strictly defined in space, such as sectors or corporations.

So, the approach offers insufficient adequate explanations and has not been clearly demarcated. Insights into the fundamental causes of the entrepreneurial ecosystems are not given. The study of the World Economic Forum (2013), for example, concludes that access to markets, human capital and finance are most important for the growth of entrepreneurial companies. But these can best be seen as superficial causes, not as the fundamental causes for the success of ecosystems—for human resources and finance are, after all, largely dependent on the underlying institutions regarding education and financial markets (Acemoglu *et al.*, 2005). For an adequate explanation, we need a distinction between necessary and contingent conditions, while for policy thinking there must be a clear definition of the role of the government and other public organizations. With respect to the consequences of entrepreneurial ecosystems, the approach has hardly been elaborated so far. The question remains: how do entrepreneurial ecosystems perform with the different forms of entrepreneurship (as output) and in terms of aggregate welfare effects (as final outcome)? After more elaboration, the tautology will probably disappear. Constructive synthesis of, on the one hand, the previously mentioned elements of the entrepreneurial ecosystem approach (Tables 1 and 2) and, on the other hand, the insights from the existing empirical studies on entrepreneurship and (regional) economic

development (Fritsch, 2013; Stam & Bosma, 2015a) could provide a better framework for regional policy.

4. Constructive Synthesis

The entrepreneurial ecosystem approach has so far been constructed ad hoc by different authors, without any shared definition. A definition that nevertheless seems widely applicable is that of "the entrepreneurial ecosystem as a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship". In this case, entrepreneurial activity is considered the process by which individuals create opportunities for innovation. This innovation will eventually lead to new value in society, and this is, therefore, the "ultimate outcome" of an entrepreneurial ecosystem, while entrepreneurial activity would be more an "intermediary output" of the system. This entrepreneurial activity has many manifestations, such as innovative start-ups, high-growth start-ups and entrepreneurial employees (Stam, 2014). Especially entrepreneurial employees seem to be of great importance for new value creation in developed economies such as Europe (Bosma *et al.*, 2012, 2014; Stam, 2013). The term productive entrepreneurship refers to "any entrepreneurial activity that contributes directly or indirectly to net output of the economy or to the capacity to produce additional output" (Baumol, 1993, p. 30), which we interpret as entrepreneurial activity that creates aggregate welfare increases (see Figure 1). Productive entrepreneurship might also include failed enterprises that have provided a fertile breeding ground for subsequent ventures or inspired them, creating net social value ("catalyst ventures": Davidsson, 2005). Technically speaking, this means that the total (social) value created by entrepreneurial activity should be more than the sum of the (private) value created for the individual entrepreneurs (leaving distributional issues aside).

To integrally bring together all aspects, a new model has been developed, as shown in Figure 1. The new model includes insights from the previous literature (i.e. the aspects that have been deemed important elements of entrepreneurial ecosystems), but most importantly, it provides more causal depth with four ontological layers (framework conditions, systemic conditions, outputs and outcomes), including the upward and downward causa-

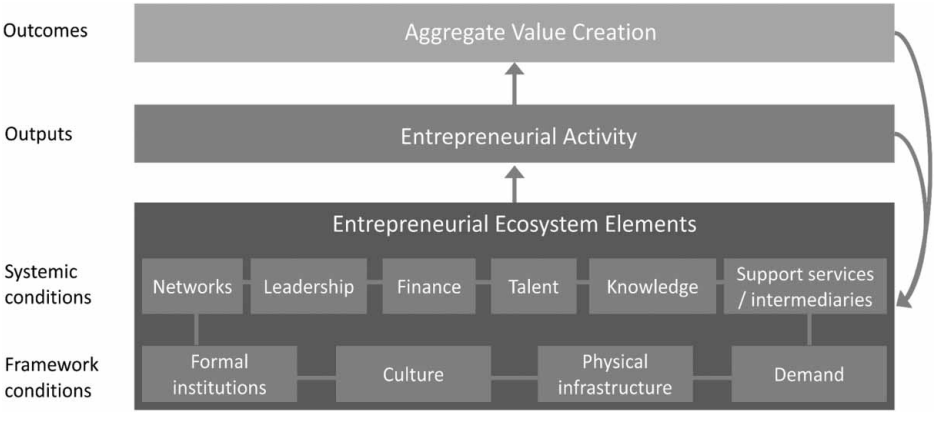

Figure 1. Key elements, outputs and outcomes of the entrepreneurial ecosystem.

tion, and intra-layer causal relations. Upward causation reveals how the fundamental causes of new value creation are mediated by intermediate causes, while downward causation shows how outcomes and outputs of the system over time also feed back into the system conditions. Intra-layer causal relations refer to the interaction of the different elements within the ecosystem, and how the different outputs and outcomes of the ecosystem might interact.

The elements of the entrepreneurial ecosystem that can be distinguished are framework conditions and systemic conditions. Both are summarized in Figure 1. The framework conditions include the social (informal and formal institutions) and the physical conditions enabling or constraining human interaction. In addition, access to a more or less exogenous demand for new goods and services is also of great interest. This access to buyers of goods and services, however, is likely to be more related to the relative position of the ecosystem than to the internal conditions of the ecosystem. These conditions might be regarded as the fundamental causes of value creation in the entrepreneurial ecosystem. However, in order to fully understand how these fundamental causes lead to this outcome, we first need to gain insight into how systemic conditions lead to entrepreneurial activity.

The systemic conditions are the heart of the ecosystem: networks of entrepreneurs, leadership, finance, talent, knowledge and support services. The presence of these elements and the interaction between them predominantly determine the success of the ecosystem. Networks of entrepreneurs provide an information flow, enabling an effective distribution of labour and capital. Leadership provides direction and role models for the entrepreneurial ecosystem. This leadership is critical in building and maintaining a healthy ecosystem. This involves a set of "visible" entrepreneurial leaders who are committed to the region. Access to financing—preferably provided by actors with knowledge of entrepreneurship—is crucial for investments in uncertain entrepreneurial projects with a long-term horizon (see e.g. Kerr & Nanda, 2009). But perhaps the most important element of an effective entrepreneurial ecosystem is the presence of a diverse and skilled group of workers ("talent": see e.g. Lee *et al.*, 2004). An important source of opportunities for entrepreneurship can be found in knowledge, from both public and private organizations (see e.g. Audretsch & Lehmann, 2005). Finally, the supply of support services by a variety of intermediaries can substantially lower entry barriers for new entrepreneurial projects, and reduce the time-to-market of innovations (see e.g. Zhang & Li, 2010).

The question at what level the entrepreneurial ecosystem approach might be best applicable has not been answered yet. This would depend on the spatial scale on which the elements are achieved, on the one hand, and how they are limited, on the other hand. For most system elements it seems possible to demarcate them at a regional (sub-national) level (e.g. regional labour markets), while the conditions can be designed on both regional and national levels (e.g. national laws and regulations) (cf. Stam & Bosma, 2015b). In addition, entrepreneurs of high-growth firms and especially entrepreneurial employees in large established firms could act as ecosystem connectors on a global scale, connecting distinct regional entrepreneurial ecosystems in their role as knowledge integrators (Sternberg, 2007; Malecki, 2011).

5. Conclusion

The entrepreneurial ecosystem approach intuitively evokes recognition and acknowledgement among public and private stakeholders of regional economies. A critical review

reveals that many insights reflect outcomes of decades of research into entrepreneurship and regional development in the past. The approach, therefore, contains no new separate insights. However, the entrepreneurial ecosystem approach provides a framework for the integration of insights from the academic literature on regional entrepreneurship, and the approach includes valuable novel contributions. First, the system approach builds up from the level of the entrepreneur in order to better understand the context of the entrepreneurship. Such a system approach also gives clues to identify the weakest link that mostly limits the performance of the entrepreneurial ecosystem (Acs *et al.*, 2014). A second novel contribution is the prominent place given to the entrepreneurs themselves to build the entrepreneurial ecosystem and keep it healthy, fed by the other stakeholders relevant to the ecosystem. Although causal relations within the system and the effects on entrepreneurship and value creation have not yet been studied sufficiently, the entrepreneurial ecosystem approach offers valuable elements for an improved understanding of the performance of regional economies. The approach emphasizes interdependencies within the entrepreneurship context, and it provides a bottom-up analysis of the performance of regional economies, without fixating on individual entrepreneurs. The approach also feeds the shift in entrepreneurship policy from the quantity to the quality of entrepreneurship. In line with Thurik *et al.* (2013), the next shift would be from regional "entrepreneurship policy" to policy for an "entrepreneurial regional economy", that is, an entrepreneurial ecosystem. So regional policy will not be about maximizing a certain indicator of entrepreneurship, but about creating a context, a system, in which productive entrepreneurship can flourish.

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