

Q&A

Paavo Ritala and Robin Gustafsson

Q. *Innovation and Entrepreneurial Ecosystem Research: Where Are We Now and How Do We Move Forward?*

A. Innovation and entrepreneurial ecosystems currently attract significant attention from both scholars and practitioners. These concepts have gained prominence due to the exponential growth of data, information, and knowledge, related collaboration and coordination needs of diverse organizations and individuals, as well as the adoption of technologies that can facilitate the connectivity of multi-actor ecosystems. While the field has progressed considerably particularly in recent years, researchers are still discussing and debating the suitability of the proposed conceptual and empirical approaches. Therefore, it is useful to take a moment to reflect on the current progression and the future outlook of this fascinating field. Indeed, as “innovation ecosystems” and “entrepreneurial ecosystems” are increasingly studied across the management, marketing, and policy realms (Aarikka-Stenroos & Ritala, 2017; Adner, 2007; Ansari et al., 2016; Autio et al., 2018; Clarysse et al., 2014; Dattée et al., 2018; Scaringella & Radziwon, 2017; Spiegel, 2017; Tsujimoto et al., 2017), the research field is rather scattered and involves diverse views and approaches to the topic. To this end, we chaired a professional development workshop titled “Fostering Rigor in Innovation and Entrepreneurial Ecosystem Research: Concepts, Methods and Theory” at the 2017 Academy of Management Annual Conference. In addition to our own presentations, we also invited four prominent ecosystem scholars to present and discuss their views on the theme: Erkkö Autio (Imperial College, UK), Satish Nambisan (Case Western Reserve University, USA), Mark Phillips (University of Cambridge, UK), and Mats Magnusson (KTH, Sweden). The aim of the workshop was to facilitate the following:

1. A shared interpretation of concepts and phenomena.
2. An appreciation and understanding of differences in research methods and approaches.
3. The advancement of a joint view and discussion by the research community on directions for the progress of innovation and entrepreneurial ecosystem research.

The workshop ended with an onsite, real-time survey that was conducted among all participants, including a moderated discussion around the survey results. In addition to the chairs and presenters, the workshop included around 60 junior and senior academics from around the world, of which 55 completed our onsite survey using their personal devices. The survey was conducted using the Kahoot platform (kahoot.com), and for each question, the participants had 45 seconds to vote among pre-set alternatives.

The survey focused on five multiple-choice questions:

1. *How do you perceive the concept of “ecosystem”?*
2. *What is the biggest challenge in conducting ecosystem research?*
3. *What are the most promising theoretical foundations of ecosystems?*
4. *To empirically study an “ecosystem,” you need to...*
5. *What should be done next in ecosystem research?*

In the sections that follow, we report the distribution of the participants’ responses to each of the five questions. In discussing these themes, we build on the insights of the presentations that took place in the workshop, as well as the overall discussion among the participants and the presenters. Finally, we end each section with our own conclusions regarding the state and promising directions for progress in the research field of innovation and entrepreneurial ecosystems.

1. How do you perceive the concept of “ecosystem”?

- A useful analogy or metaphor that describes novel phenomena: 62%
- A promising new scholarly field of its own: 30%
- A buzzword without much added value: 8%

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The question of what “ecosystem” means is typically the first reaction that innovation and entrepreneurship researchers encounter when using the term for scholarly purposes. In this regard, an increasing number of studies discussing the applicability and boundary conditions of the ecosystem concept have been conducted (Oh et al., 2016; Ritala & Almpanopoulou, 2017; Stam, 2015; Tsujimoto et al., 2017). However, the conceptualization of ecosystems in innovation and entrepreneurship research remains a debated issue. At the same time, the concept was valued by most of the workshop participants: a strong majority viewed it as *a useful analogy or metaphor for novel phenomena*. Both analogies and metaphors are important tools in theory building, with each playing a different role in the process (Ketokivi et al., 2017). The term “ecosystem” has certainly worked as both an inspiration (i.e., metaphor) to understand the networked nature of innovation and entrepreneurship, as well as an analogy to explain such phenomena by utilizing concepts from biological ecosystems. Nearly a third of participants viewed it as *a promising scholarly field of its own*. This can perhaps be attributed to the increasing prominence of ecosystems in the management research lexicon. However, before becoming anything near to a “field”, theoretical and methodological distinctiveness should be pursued, and currently, the literature is lacking such foundations (for new openings to this direction, see Adner, 2017 and Jacobides et al., 2018). Finally, some participants labelled ecosystem as a *buzzword* due to its traction among practitioners and academics, while overlapping with other concepts such as innovation systems (see Oh et al., 2016, for a related discussion).

Overall, an “ecosystem” was perceived as a useful concept, or even a scholarly field in its own right, within the areas of innovation and entrepreneurship. This finding certainly reflects the audience’s involvement and interest in ecosystem research, some having already published on it, some doing research drawing on the concept, some evaluating whether to engage with the concept or not, and all having decided to attend a workshop on this topic. However, to unlock the concept’s potential, ecosystem researchers need to address several challenges from conceptual, empirical, and theoretical standpoints. We discuss these in the remaining sections.

2. What is the biggest challenge in conducting ecosystem research?

- Conceptual ambiguity: 39%

- Methodological challenges: 35%
- Lack of a rigorous theoretical foundation: 24%
- Difficulties in publishing: 2%

Conceptual ambiguity is a major challenge for innovation and entrepreneurial ecosystems research, given its close resemblance to other network or system-level concepts such as interorganizational networks, clusters, geographical regions, systems, or platforms (see, e.g., Adner, 2017). This ambiguity crops up across the research field in heterogeneous formulations of the concept, and it is causing difficulties in establishing a coherent research program. This is experienced, for example, in review processes, where reviewers, editors, and authors commonly challenge the use of the concept and its applicability, as well as in doctoral courses, where discussions arise on the meaning and application of the ecosystem concept. Relatedly, *methodological challenges* arise: how do we study interconnected systems that include actors such as business organizations, universities, individuals, regulatory actors, competitors, and complementors? Such a system-level inquiry is very difficult to obtain using any established research methods due to the excessive amount of data gathering needed and the multiple influences all of these components have on one another, creating challenges for both qualitative and quantitative researchers alike. Also, reporting of system-level phenomena with an excessive amount of data can be a challenge given the current journal requirements for reporting format and page limits. Furthermore, an important challenge for the research community is to find solutions to the *lack of rigour in the theoretical foundations*. The ecosystem concept has been analogously derived from ecological studies (Moore, 1993). Given that the concept is contested even in its original domain (e.g., O’Neill, 2001), it becomes difficult to theorize based on a mere analogy. Perhaps, for this reason, many authors have used ecosystem metaphorically to describe the interconnected nature of innovation and entrepreneurship, while drawing from other theoretical foundations for explanations of the phenomena.

We argue that such a conceptual ambiguity is a root cause of other problems (methodological and theoretical) in ecosystems research. Given its multi-purpose heuristic use to study such subjects as Deutsche Telekom’s “open innovation ecosystem” (Rohrbeck et al., 2009), the “Silicon Valley ecosystem” (Engel, 2015), and the “US Television ecosystem” (Ansari et al., 2016), we

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can see that both boundaries, as well as levels of analysis of ecosystem phenomena, vary considerably. This is perhaps not a problem if the concept is scalable, but it shows that we need to better understand its fundamental features.

3. What are the most promising theoretical foundations of ecosystems?

- Systems theory, complex adaptive systems: 44%
- Network theory, social networks: 32%
- Institutional theory and institutional mechanisms: 16%
- Something else/new: 8%

As the concept ecosystem implies, the role of “system” is integral to understanding the phenomenon in focus. Almost half of the workshop participants found the most promising theoretical foundation to be grounded in *systems theory* or *complex adaptive systems*. The use of some system-level theoretical concepts such as emergence, interdependence, and dynamics is rather frequent in current scholarly work (see, e.g., Adner & Kapoor, 2010; Ansari et al., 2016; Stam, 2015). However, a more overarching emphasis on system-level theoretical principles and concepts is much rarer (for exceptions and discussion, see, e.g., Peltoniemi, 2006; Ritala & Almpantopoulou, 2017; Roundy et al., 2018; Scaringella & Radziwon, 2017). Second, *network theory and social networks* were seen as another promising theoretical foundation. Indeed, much of the ecosystem literature draws from network literature, including ecosystem definitions involving the concept of “network” (Adner & Kapoor, 2010), as well as utilizing social network analysis to examine innovation ecosystem structures (Clarysse et al., 2014; Still et al., 2014). A critical challenge for this approach is to distinguish ecosystem studies from network studies: if there is no difference, do we need a new concept? Finally, *institutional theory and institutional mechanisms* are seen as a possible theoretical foundation. Some authors have already picked up on this by suggesting that institutional theory concepts such as “organizational field” be infused into an ecosystem analysis (Claudel, 2018; Thomas & Autio, 2014).

We see that there is certainly potential to examine ecosystems through multiple lenses. This is similar to innovation and entrepreneurial networks, which have been studied not just from a network-theoretical perspective, but also from institutional and contextual per-

spectives (Autio et al., 2014), for instance. However, there is a risk in relabelling networks as ecosystems, just because the latter might resonate better with some of the ongoing discussions, thereby helping to argue for novelty via reconceptualization. To harness the distinctive nature of the analogy, we need to understand the *ecological* component when it comes to explaining interdependencies and coevolution, as well as the *systems* component when it comes to studying not only network linkages, but also other actors in the broader system (see also Ritala & Almpantopoulou, 2017). Also, innovation and entrepreneurial ecosystems could be viewed as cultural or value systems (Fisher et al., 2017; Glynn & Lounsbury, 2005). We believe that efforts to develop theory both from complex adaptive systems (e.g., Peltoniemi, 2006) and institutional theory (e.g., Vargo et al., 2015) show particular promise for creating bases for theorizing on innovation and entrepreneurial ecosystems. Finally, some studies have recently examined ecosystems through organizational lenses, viewing them as meta-organizations (e.g., Järvi et al., 2018). These and other types of theoretical approaches related to the organization of innovation and entrepreneurial ecosystems could be useful to understand the “micro-foundations” of ecosystem governance.

4. To empirically study an “ecosystem”, you need to...

- Examine the ecosystem in its contextual and institutional environment: 64%
- Examine the complete set/all ecosystem actors: 19%
- Study a specified set of actors: 17%

The strong majority of the participants in the professional development workshop opted for examination of the ecosystem in its overall *contextual and institutional environment*. This is important given the regulative and normative relevance of context for any actor, organization, and collective (Suddaby et al., 2010; Zietsma et al., 2017). For instance, several scholars have suggested that any analysis of innovation and entrepreneurship in an ecosystem context should include the understanding of institutions and institutionalization (Aarikka-Stenroos & Ritala, 2017; Autio et al., 2018; Vargo et al., 2015). Other, less popular options included the two alternative approaches to studying ecosystems: examination of the *complete set of actors* or studying a *specified set of actors*. Although the former is ideal for understanding the overall system and its interdependencies, researchers often tend to focus on a focal actor and its

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ecosystem. This approach resembles the distinction between network studies of whole networks and ego-centric networks (Provan et al., 2007).

We see substantial challenges in conducting rigorous empirical studies of innovation and entrepreneurial ecosystems, particularly in the understanding of contextual interactions taking place within them (Autio et al., 2014). Studies need to account for both the institutional complexities arising from contexts with multiple institutional logics (Greenwood et al., 2011) and the contested and fragmented nature of institutional environments (Pache & Santos, 2010, 2013). Furthermore, as the number of actors, technologies, and institutions grows, the challenges of accessing such data become difficult. Advances in empirical approaches and research methodologies to account for the complex and fragmented nature of environments, as well as the multitude of interactions between actors, are needed to move the innovation and entrepreneurial ecosystem field forward.

5. What should be done next in ecosystem research?

- Move on and find empirical evidence: 38%
- Integrate ecosystem research into existing streams: 32%
- Keep clarifying the conceptual underpinnings: 17%
- Create new, solid, and unique foundations: 13%

Where should we go next? A majority of the workshop participants were inclined to suggest *moving on and collecting empirical evidence*. The ecosystem literature tends to revolve around conceptual papers and discussions, and it would be useful to start collecting empiric-

al evidence that would utilize the perspective. Many authors have certainly done this, but the problem remains that an ecosystem is typically defined quite differently, leading to major differences in empirical research designs. The other suggestions include perhaps some remedies to this problem. First, a sufficiently popular option was to *integrate ecosystem research into existing streams*. This would help not only in empirical research design but also in grounding ecosystems in established research traditions and programs. Second, *clarifying the conceptual underpinnings* is still a valid future direction given the lack of consensus on what an ecosystem is and how it can be studied. Third, *creating a new and unique foundation for ecosystem research* is a lucrative option, already pursued by authors in strategy research (see, e.g., Adner, 2017). For innovation and entrepreneurial ecosystem scholars, the same challenge and opportunity remain in sight, with many scholars discussing the concept and its uniqueness in these fields (Autio & Thomas, 2014; Stam, 2015; Tsujimoto et al., 2017).

Conclusion

Innovation and entrepreneurial ecosystems remain important topics in the ever-connecting and expanding digital economy. Given the practical relevance and rapidly increasing utilization of the ecosystem concept by managers, entrepreneurs, and policy actors, it is no surprise that researchers from different backgrounds and disciplines are flocking to these topics. Increasing diversity of conceptual and empirical applications creates both a challenge and opportunity for ecosystem scholars. Whether the analogy will be retained within the long-lasting scholarly lexicon remains to be seen – and this will be strongly affected not only by the relevance of the ecosystem concept, but also the rigour that researchers are able to bring to its application.

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