
Editorial

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The innovation ecosystem perspective has shifted the competitive advantage of firms from individual products to platforms, alliances, innovation networks and ecosystems (Adner, 2006; Gomes-Casseres, 1994). This new perspective has introduced three novel features to innovation activities: blurred boundaries between participants, the complexity and systematic nature of innovation activities, and a focus on market cultivation, collaborative development and value creation (Adner and Kapoor, 2010, 2016; Autio and

Thomas, 2013). Although many studies have explored the construction, governance and evolution of innovation ecosystems, they have mostly focused on the development of core technologies or focal firms with core technologies (Adner, 2017; Adner and Lieberman, 2021; Ansari et al., 2016; Dattée et al., 2018; Hannah and Eisenhardt, 2018; Jacobides et al., 2018; Kapoor and Furr, 2015; Kapoor and Lee, 2013). However, in emerging economies, where most firms are integrated into ecosystems dominated by firms from developed economies, complementors can acquire innovation capabilities and eventually disrupt established ecosystems, leading to distinctive technological innovation pathways.

Green technology innovation is critical to achieving high green economic growth and improving environmental sustainability (Shan et al., 2021; Zhao et al., 2022). In emerging country, there are challenges of institutional voids, lack of capability in enterprise level, less commitment from governments. So, to build up the green industry there is not an easy tack. In this sense, multi-stakeholder cooperation and the development of external knowledge resources are essential for green innovation in emerging countries (Zeng, 2023). Therefore, it is essential to integrate the innovation ecosystem perspective into research on green innovation and green industrial development. The unique institutional environment, the focus on combining economic, social and environmental benefits, and the growing demand for green products and services have contributed to the creation of the green innovation ecosystem. The rapid development of green industries in emerging economies requires the application of the innovation ecosystem perspective to analyse resource allocation and matching, environmental regulation and market orientation, user interaction and agile response, and symbiotic competition and cross-border integration in their industrial development.

Considering this context, China represents a special case when it comes to green innovation. Despite being a late entrant, China now leads the world in both electric vehicle and photovoltaic industries. It will be not sufficient to simply understand the rise of two industries in terms of the government's role by using a technologically leap-frogging strategy (Lee and Lim, 2001). Accordingly, we assume that the new perspective of innovation ecosystem will be more appropriate.

To explore the study of green innovation ecosystems in the context of emerging economies, we have organised this special issue. In this special issue, we have selected seven articles that explore various aspects of green innovation ecosystems in emerging economies.

The first study, conducted by Hu, Lyu, and Zhang, focuses on cross-border mergers and acquisitions completed by Chinese listed manufacturing firms during 2009–2015. The authors find that multinational enterprises in emerging economies with strong environmental, social, and governance (ESG) practices positively affect their post-acquisition green innovation. They also demonstrate that Chinese governmental control over the economy promotes green innovation in emerging economy multinational enterprises (EMNEs) and that environmental subsidies can strengthen this impact.

The second study, by Yang, Yang and Guo, explores how value supporters in the innovation ecosystem can facilitate green innovation in small and medium-sized enterprises (SMEs) in emerging economies. The authors conduct an exploratory case study of Bering 3D, a leading 3D printing company in China, and find that value supporters in an innovation ecosystem can facilitate green innovation in SMEs through the mechanisms of supplementing, translating, and expanding. These mechanisms are effective in reducing SMEs' innovation resource constraints and enhancing their

initiative, making a significant contribution to the literature on innovation ecosystems and green innovation.

The third study, by Chen and Wang, examines the importance of building and improving the national green technology transfer system for sustaining regional sustainable development. Using interprovincial green patent transfer data from 2006 to 2020, the authors construct China's regional green technology transfer networks (CGTTNs) and study the evolution of their structural characteristics and endogenous evolution mechanisms. They find that CGTTNs are becoming increasingly dense, but the interprovincial reciprocity effect still needs to be improved, and the ability and efficiency of CGTTN organisations to use and integrate complementary resources needs to be enhanced.

The fourth study, by Tang, Yan, Xie and Chen, aims to examine the spatial evolution patterns and influential factors behind China's green innovation ecosystem. The authors collect a sample of green patent applications at the provincial level in China from 2009 to 2019, and systematise indicators of innovation actors and external factors for green innovation output. They use principal component methods and geographically weighted regression to analyse the data. The study finds that green innovation output diffuses rapidly in China, following a high-value concentration that spreads to low-value areas. The technology spillover effect shows a strong spatial correlation, which promotes the balanced development of green technology. The policy and infrastructure environment for green development primarily determines the external factors that shape the innovation ecosystem for green innovation. However, the investment of financial resources in China's green innovation ecosystem is still insufficient.

The fifth study by Zhang, Xie and Yang investigates how corporate social responsibility (CSR) disclosure influences firms' green innovation performance, and specifically examines the roles of actors in the innovation ecosystem, including suppliers, users and governments. They find that not only firms' CSR disclosure, but also firms' suppliers and users who are experienced in green practices can improve firms' green innovation performance.

The sixth study by Carst and Lv argues that complementors enhance the value of the ecosystem's core proposition, but their complement challenges can develop into bottlenecks, disrupting the entire ecosystem and threatening its health and development. They consider the complementors' perspectives to explore their approaches to complement challenges. The study draws on the insights of two ports in Denmark and China that act as complementors in the offshore wind energy ecosystem. Depending on the complexity of the complement challenges and their willingness to meet them, complementors rely on different approaches.

Finally, Hu, Liao, Su, Wang and Wu investigate the design of an innovation ecosystem that may facilitate the adoption of green technologies through specific channels. Using a multiple case study design, they examine four representative firms that promote the adoption of green technologies such as clean energy, energy conservation, carbon reduction, and digitalisation. They propose a general framework for a green innovation ecosystem and green technology adoption. The framework identifies four key ecosystem design paradigms and proposes two channels for overcoming barriers to green technology adoption.

Overall, the authors in this special issue have presented a diverse set of studies that examine different aspects of the green innovation ecosystem in emerging economies, including the influence of the ESG practices of multinational enterprises, the role of value

supporters and complementors in innovation ecosystems, the importance of building and improving national green technology transfer systems, the spatial evolution pattern of the green innovation ecosystem, the role of CSR disclosure and experienced actors in the innovation ecosystem, and the design of innovation ecosystems for the adoption of green technologies. These studies make significant contributions to the literature on green innovation and innovation ecosystems in emerging economies, expanding our understanding of green innovation ecosystems and the various mechanisms that affect their evolution and success. By highlighting the different aspects, this special issue contributes to a comprehensive understanding of the green innovation ecosystem and its underlying mechanisms, and can inform policy decisions aimed at promoting green innovation in emerging economies.

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