



Logics at play: How logics shape interactions across entrepreneurial ecosystems

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Abstract Most entrepreneurial ecosystem research has focused on the actors and interactions within a focal (often regional) entrepreneurial ecosystem. This entails the often-implicit assumption that entrepreneurs mainly interact with actors within their own entrepreneurial ecosystem. We argue that this assumption limits entrepreneurial ecosystem research and address this limitation by exploring the research question: *What influences interactions across the boundaries of entrepreneurial ecosystems?* We study how both individual motivations and institutional logics influence interactions across the boundaries of a focal entrepreneurial ecosystem. We find that entrepreneurs interact across entrepreneurial ecosystem boundaries to gain access to resources, particularly

finance, knowledge, and customers. Furthermore, we find that the ability of actors to engage in cross-entrepreneurial ecosystem interactions is influenced by two logics. Start-up development logics enable interactions beyond entrepreneurial ecosystem boundaries, as they prompt actors to prioritize the development and growth of start-ups. In contrast, regional development logics often hinder interactions by transforming administrative boundaries into entrepreneurial ecosystem boundaries. Identifying and describing these logics is the primary contribution of this paper.

Plain English Summary Being part of a regional entrepreneurial ecosystem often limits access to support in other regional entrepreneurial ecosystems. We find that interacting across boundaries may require entrepreneurs to choose between ecosystems. To date, research on entrepreneurial ecosystems has paid little attention to interactions across the boundaries of entrepreneurial ecosystems. We address this topic by studying what influences actors' decisions to interact across boundaries. We find that getting access to resources—particularly finance, knowledge, and customers—is the primary motivation for entrepreneurs to interact across entrepreneurial ecosystem boundaries. However, their ability to do so can be influenced by other actors. Specifically, actors who enforce a regional development logic, prioritizing regional interests over start-up interests, may hinder such interactions. We encourage actors to critically reflect on their own logics and modify

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behaviors that counterproductively influence the entrepreneurial ecosystem.

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JEL Classification L26 · M13 · O03 · R11 · R12

1 Introduction

The entrepreneurial ecosystem literature describes how entrepreneurs depend on actors (e.g., incubators, provinces, entrepreneurs, investors) for resources and how their behavior is shaped by the environments in which they are embedded (Alvedalen & Boschma, 2017; Audretsch & Belitski, 2017; Stam, 2015; van Rijnsoever, 2022). The entrepreneurial ecosystem framework has become an important tool for both academics and practitioners to understand and influence productive entrepreneurship. This is important because productive entrepreneurship creates both societal and economic value (Acs et al., 2013; Baumol, 1990). Productive entrepreneurship is often proxied through start-ups (e.g., Leendertse et al., 2022), which we define as small, young entrepreneurial ventures in the process of exploring technology to develop fast-growing businesses (Bjornali & Ellingsen, 2014; Fontes & Coombs, 2001; Klotz et al., 2013).

To date, most scholarly attention has focused on the actors and interactions within a focal (often regional) entrepreneurial ecosystem (Fischer et al., 2022; Schäfer, 2021; Schäfer et al., 2024), often at the expense of research addressing interactions beyond a single entrepreneurial ecosystem. This focus often entails the (implicit) assumption that entrepreneurs mainly acquire resources from actors located within their own (regional) entrepreneurial ecosystem. This is surprising, as entrepreneurial ecosystems do not exist in isolation but are, in fact, interconnected (Wurth et al., 2022). Consequently, the dominant approach of conceptualizing entrepreneurial ecosystems as isolated analytical units results in an incomplete understanding of entrepreneurial ecosystems. It largely ignores the influence of “outside” interactions, such as those with actors from other entrepreneurial ecosystems (Theodoraki & Catanzaro, 2022; Xu et al., 2023). Noteworthy exceptions

include studies on the international relocation of start-ups (March-Chordà et al., 2021; Schäfer & Henn, 2018; Weik et al., 2024) and the international mobility of venture capital (Schäfer et al., 2024; Weik et al., 2024).

Recently, scholars have started to conceptually discuss interactions across entrepreneurial ecosystem boundaries. Theodoraki and Catanzaro (2022), for example, explore these boundaries through an international lens. Brown and Mason (2017) suggest that linkages between entrepreneurial ecosystems may evolve with the ecosystem’s maturity. These authors also highlight two key factors that may influence cross-entrepreneurial ecosystem interactions: (1) the motivations of individual entrepreneurs and (2) the institutional context of the ecosystem. However, these studies do not empirically address or explain why stakeholders (do not) interact beyond their ecosystem boundaries (Fischer et al., 2022; Schäfer, 2021; Theodoraki & Catanzaro, 2022; Wurth et al., 2022). Moreover, due to the lack of research on interactions across entrepreneurial ecosystem boundaries, practitioners and policymakers cannot rely on evidence to assess whether such interactions are a relevant area for policy to stimulate productive entrepreneurship—let alone what relevant policies would look like.

Developing a better understanding of interactions beyond the boundaries of entrepreneurial ecosystems is thus a relevant issue for both theory and practice. We address this topic by asking the following research question: *What influences interactions across the boundaries of entrepreneurial ecosystems?* In line with the suggestion of Brown and Mason (2017), we study how both (1) the motivations of individual entrepreneurs and (2) the institutional context influence interactions across the boundaries of each entrepreneurial ecosystem.

We draw on in-depth case studies of three entrepreneurial ecosystems within the context of the Dutch EWUU alliance. The EWUU alliance is a Dutch university alliance that includes universities from the cities of Eindhoven, Utrecht, and Wageningen. It was established in 2019 by Eindhoven University of Technology, Wageningen University and Research, Utrecht University, and the Utrecht Medical Centre. The aim of the EWUU alliance is to enhance the societal impact (e.g., via entrepreneurship) of its partner organizations by exploring potential productive interactions between the organizations and their entrepreneurial ecosystems. This context aligns with previous studies emphasizing the importance of universities in entrepreneurial

ecosystems (Kordshouli et al., 2024; Prokop, 2021) and provides an excellent opportunity to study the interactions across entrepreneurial ecosystems.

Our findings contribute to existing work by detailing the motivations of individual actors to interact across entrepreneurial ecosystem boundaries. We show that obtaining access to resources, particularly finance, knowledge, and customers, is a key motivation for entrepreneurs to cross entrepreneurial ecosystem boundaries. Moreover, we demonstrate how the institutional context can play a role in cross-entrepreneurial ecosystem interactions by identifying two underlying institutional logics that influence when and how actors (can) act upon their motivations: regional development logics and start-up development logics. These logics reflect (support) behaviors, rules, and conditions that prioritize support to either align with regional development and regional challenges, or support that best facilitates start-up development. These logics are part of the institutional context and these logics influence whether actors cross ecosystem boundaries. We describe the dynamic interplay between these logics, which are often complementary but may, at times, conflict. For example, when regional development logics prevail, being part of a specific regional entrepreneurial ecosystem can limit entrepreneurs' access to resources and support in other regional entrepreneurial ecosystems, potentially hindering start-up development. We encourage entrepreneurial ecosystem support actors to critically reflect on prevailing logics and be mindful of behaviors that may counterproductively affect start-up development and productive entrepreneurship overall due to conflicting logics.

2 Theory

The theory consists of three sections. In the first section, we review existing literature on entrepreneurial ecosystem boundaries and discuss how these boundaries can be identified. In the second section, we discuss the motivations of entrepreneurs to interact across entrepreneurial ecosystem boundaries. In the third section, we discuss how the institutional context can influence these interactions via institutional logics.

2.1 Entrepreneurial ecosystem boundaries

The boundaries of economic systems are a topic of frequent debate in the ecosystems literature (Carlsson

et al., 2002; Cho et al., 2022; Cobben et al., 2022). This is the case because clarifying the spatial boundary of ecosystems is crucial to unpacking the dynamics in entrepreneurial ecosystems (Gulati et al., 2012; Post et al., 2007). The spatial boundaries are, currently, often chosen to coincide with administrative borders (Cobben et al., 2022; Schäfer, 2021; Wurth et al., 2022). However, several authors (e.g., Cho et al., 2022; Fischer et al., 2022; Schäfer, 2021) argue that this approach to defining boundaries of entrepreneurial ecosystems is too simplistic. Inspired by recent research by Fischer et al. (2022), we categorize our understanding of what characterizes entrepreneurial ecosystem boundaries along two main schools of thought: economic geography theories and neo-institutional theory.

Economic geography theories (Davis & Weinstein, 1999) conceptualize ecosystem boundaries as territorial phenomena. Within this category, spatial boundaries of ecosystems are clearly defined and can span from communal or city levels (e.g., Mack & Mayer, 2016; Motoyama & Knowlton, 2017; Spigel, 2017) to regional or provincial levels (e.g., Guzman & Stern, 2020; Sternberg et al., 2019; Xu et al., 2023) to national levels (e.g., Ács et al., 2014; Radošević & Yoruk, 2013). However, when researchers choose to define the spatial boundaries of an entrepreneurial ecosystem in territorial terms, they encounter several difficulties in incorporating sector-specific expertise, socio-economic factors, and diverse forms of formal and informal institutional support (Fischer et al., 2022; Perugini, 2023). As a result, the ambiguity in identifying the spatial boundaries around entrepreneurial ecosystems prevents researchers from investigating the interlinkages and interactions among entrepreneurial ecosystems (Schäfer et al., 2024; Wurth et al., 2022).

This can be addressed using the second school of thought. Based on neo-institutional theory, the conceptualization of boundaries can be defined by the actors, activities, and artifacts that are part of the entrepreneurial ecosystem. This conceptualization looks at the locations of actors and defines the boundaries of an ecosystem based on the range in which actors perform activities that connect them with other actors or artifacts. Placing entrepreneurial actors at the core of entrepreneurial ecosystems and defining entrepreneurial ecosystem boundaries based on the extent of entrepreneurial activities has been a

fundamental step in the current scholarly understanding of entrepreneurial ecosystem boundaries (Brown & Mason, 2014; Hernández-Chea et al., 2021; Roundy, 2016).

In line with Fischer et al. (2022), we combine the economic geography and neo-institutional schools of thought to conceptualize ecosystem boundaries as a combination of territorial boundaries and the range in which actors, activities, and artifacts operate. This allows us to understand how a focal entrepreneurial ecosystem is connected to other entrepreneurial ecosystems through actors and activities.

2.2 Motivations to interact across entrepreneurial ecosystem boundaries

In entrepreneurial ecosystems, start-ups typically suffer from a lack of resources (Kuratko et al., 2017; Leendertse et al., 2021; Truong & Nagy, 2020), which requires them to interact with other actors for access to resources (Alvedalen & Boschma, 2017; Audretsch & Belitski, 2017; Stam, 2015; van Rijnsoever, 2022). Typically, the interactions of start-up entrepreneurs focus on a local context (Brown & Mason, 2017). However, sometimes entrepreneurs engage in cross-entrepreneurial ecosystem interactions (Harima et al., 2021; Wang et al., 2023).

These non-local interactions are driven by specific motivations. These potential motivations are addressed in the transnational entrepreneurship literature (Abd Hamid et al., 2023; Fuller-Love & Akiode, 2020; Schäfer & Henn, 2018), where a lack of resources in the local context is considered the main motivation for non-local interactions. Several studies show that entrepreneurs in rural areas indeed frequently engage in interactions with actors outside of their region (Mayer et al., 2016; Meili & Shearmur, 2019; Motoyama & Henderson, 2023). An example of a resource that can drive these interactions is the availability of investments. Although the majority of venture capital investments are national or even regional, there is still a substantial amount of venture capital investments that cross international borders (Bertoni et al., 2015; Schäfer et al., 2024; Weik et al., 2024; Wright et al., 2005). Another example is a study that points to culture as a motivation for entrepreneurs to relocate (Motoyama & Desai, 2022).

The access to resources as motivation to interact across boundaries aligns conceptually with the

entrepreneurial ecosystem framework. In this framework (e.g., Stam, 2015; Stam and van de Ven, 2021; Wurth et al., 2022), the needs of entrepreneurs are conceptualized along ten elements. These ten entrepreneurial ecosystem elements are physical infrastructure, demand, intermediaries, talent, knowledge, leadership, finance, networks, formal institutions, and culture. We argue that, for entrepreneurs, each of these ten elements forms a type of resource that they can gain access to by interacting across the boundaries of their regional entrepreneurial ecosystem. Potentially, each of these ten elements can thus be a motivation for entrepreneurs to interact across entrepreneurial ecosystem boundaries.

2.3 The role of institutional context: Institutional logics shaping behavior and interactions

Actors in entrepreneurial ecosystems are influenced by their institutional context (Brown & Mason, 2017; Hernández-Chea et al., 2021; Welter et al., 2019). Within an institutional context, institutional logics provide the “rules of the game” that guide social and economic life and thus shape the behaviors and decisions of the (entrepreneurial) actors embedded in them (Battilana et al., 2009; Dorado, 2005; Jay, 2013; Zilber, 2011). Typically, a multitude of logics coexist within an institutional context; these logics can be complementary or conflicting (Currie & Spyridonidis, 2016; Nederhand et al., 2019). For example, following Thornton et al. (2012), market logics may lead ecosystem actors to prioritize shareholder value, whereas public or state logics, driven by governmental agencies, emphasize rule-following behavior. Hence, different prevailing logics may influence the motivations and behavior of actors in entrepreneurial ecosystems in distinct ways.

Institutional logics thus offer cognitive models or schemas and standard practices that actors use to interpret and guide their activities, including elements such as work practices and governance structures, as well as preferences and goals shaping behavior (Jay, 2013; Scott, 2003; Smets et al., 2015; Thornton & Ocasio, 2008). As such, institutional logics enable scholars to understand and theorize the behavior of actors in a particular institutional context (Friedland & Alford, 1991; Thornton et al., 2012).

Drawing on an institutional logics perspective thus enables the development of a more sophisticated

understanding of the decision-making behavior of entrepreneurial ecosystem actors, including decision-making behavior regarding cross-boundary interactions (Alterskye et al., 2023; Lee & Lounsbury, 2015). Studying both individual motivations (see Sect. 2.2), institutional logics, and the interplay between them allows us to increase our understanding of the decisions of entrepreneurs to interact across the boundaries of entrepreneurial ecosystems (or not). Where individual motivations determine actors' desire to interact across the boundaries of entrepreneurial ecosystems, institutional logics influence whether and how actors actually act upon such motivations (Lounsbury & Boxenbaum, 2013).

3 Method

3.1 Research design and case selection

We performed an in-depth case study of cross-boundary interactions in three Dutch regional entrepreneurial ecosystems. We selected three potential entrepreneurial ecosystems based on the location of the partner organizations that form the EWUU (Eindhoven University of Technology, Wageningen University and Research, Utrecht University, University Medical Centre Utrecht) alliance, which is the context of our research. We started our study from the three focal cities in which the four EWUU alliance university partners are located. These three entrepreneurial ecosystems all matched the following criteria: (1) the presence of a high-quality regional entrepreneurial ecosystem (top 10% in Europe) as operationalized by Leendertse et al. (2022),¹ (2) part of the same national context, (3) identifiable regional boundaries, (4) some degree of geographical connectedness, and (5) presence of a university.

In addition to the common characteristics, a distinguishing feature of each entrepreneurial ecosystem is based on the degree and nature of industrial specialization. Wageningen is highly specialized in agrifood, which leads to a clear prominence of start-ups in this

sector. Eindhoven is specialized in high-tech, but this specialization is less prominent than the specialization in Wageningen. Utrecht is a more diverse entrepreneurial ecosystem in which healthcare is a relatively dominant theme, in addition to several other focal areas. The selected entrepreneurial ecosystems thus constitute suitable cases to study interactions in high-quality entrepreneurial ecosystems with different degrees of sectoral specialization. We assume that—because of the differences and similarities—the three entrepreneurial ecosystems offer different resources to entrepreneurs, challenging them to consciously consider in which of the ecosystems to build their venture, but also to interact with other entrepreneurial ecosystems.

Table 1 provides an overview of the three cases. We used Statistics Netherlands (CBS, 2023) for the population statistics, Leendertse et al. (2022) for the EE quality score, and Crunchbase (2023) for the start-up data.

3.2 Data collection

We started our research by identifying and theoretically sampling key informants (i.e., entrepreneurial ecosystem actors) in each regional entrepreneurial ecosystem. For this, we built on existing literature and identified start-ups, local governments (provinces and municipalities), universities (academic staff, support staff, technology transfer offices), regional development agencies, (private) investors, and entrepreneurial support organizations (including incubators and accelerators) as the relevant actors in entrepreneurial ecosystems (Bergman & McMullen, 2022; Brown & Mason, 2017; Wurth et al., 2022). We made sure to include these key actors in each of the three regional entrepreneurial ecosystems. An overview of the actor types, the number of interviews per actor type, and an identification code for each actor is provided in Table 2. The identification codes consist of a combination of the actor type (e.g., SU for start-up), the region (e.g., E for Eindhoven), and a number. SU_E1 thus represents the first interviewed start-up from Eindhoven. We assigned each actor type to their most prominent role. A less aggregated overview of the actors is provided in Appendix 1.

The author team included authors from all three universities, at the start of the research. This allowed us to start with an extensive network in each entrepreneurial

¹ Leendertse et al. (2022) operationalize the 10 elements as outlined by Stam (2015) and combine the measurements of the elements in an entrepreneurial ecosystem index that shows the quality of 273 regional entrepreneurial ecosystems in Europe.

Table 1 Characteristics of the three entrepreneurial ecosystems

Focal city	Eindhoven	Utrecht	Wageningen
Population in city	243,730	367,974	40,960
Population in NUTS-2 region	2,626,210	1,387,643	2,133,708
EE quality index score	18.46	25.18	17.67
Total start-ups in NUTS-2 region	922	669	748
Total start-ups in the city	173	260	26
% of start-ups active in the most prolific sector	23%	12%	58%
Focal university	Eindhoven University of Technology	Utrecht University	Wageningen University and Research
Main industrial focus	High-tech	Health	Agri-food
No. of actors interviewed	21	23	22

Table 2 Informants per entrepreneurial ecosystem and actor type, including actor codes

	Eindhoven	Utrecht	Wageningen
Start-up (SU)	8 (SU_E1–SU_E8)	6 (SU_U1–SU_U6)	7 (SU_W1–SU_W6)
Entrepreneurial support organization (ESO): incubator, accelerator, sector-specific network	3 (ESO_E1–ESO_E3)	5 (ESO_U1–ESO_U5)	3 (ESO_W1–ESO_W3)
University (UNI): academic staff, support staff, technology transfer office	3 (UNI_E1–UNI_E3)	5 (UNI_U1–UNI_U5)	8 (UNI_W1–UNI_W8)
Regional development agency (RDA)	3 (RDA_E1–RDA_E3)	2 (RDA_U1–RDA_U2)	1 (RDA_W1)
Local Government (LG): province, municipality	1 (LG_E1)	4 (LG_U1–LG_U4)	2 (LG_W1–LG_W2)
(Private) Investor (INV)	3 (INV_E1–INV_E3)	1 (INV_U1)	1 (INV_W1)
No. of actors	21	23	22

ecosystem. In addition, we used desk research to identify potentially relevant actors and used referrals to get connected to relevant actors in the EE not yet in the authors' networks. Finally, we asked all actors to refer us to other potentially relevant informants. The theoretical sampling followed by the combination of desk research and referrals served to arrive at a balanced and coherent sample of actors for each EE.

To define the boundaries of the respective entrepreneurial ecosystems and to validate whether these are indeed perceived as separate entrepreneurial ecosystems, we used boundary descriptions by entrepreneurial ecosystem actors. We built on economic geography and neo-institutional schools of thought and asked the actors to characterize the boundaries of their entrepreneurial ecosystem. For triangulation, we asked who the actors saw as the most important actors in their entrepreneurial ecosystem based on the relevance and

frequency of interactions. We used their answers to determine what the actors perceive to be the boundaries of their entrepreneurial ecosystem. The results confirmed that the three focal cities, from which we started, are considered part of three distinct regional entrepreneurial ecosystems. We draw this conclusion based on five consistent patterns, namely: (1) Actors consistently refer to other actors located in the same region as the most important actors and describe geographical boundaries that exclude the other cities. (2) The three regions differ in their sectoral focus, and the importance of this sectoral focus to the actors is different in each region. (3) When actors refer to collaboration or interaction with actors from outside the region, they refer to actors at the national or international level (e.g., national government, Techleap, or the EU). An example (ESO_U2): "The ecosystem is a small circle with expanding circles around it. First, [a list of

regional actors] and then national and even international.” This is evidence that entrepreneurial ecosystems are multi-layered. Regional entrepreneurial ecosystems are embedded in a national and international ecosystem (Schäfer et al., 2024). (4) There are several actors (e.g., ESOs) who fulfill similar functions but in non-overlapping geographical areas. (5) Different types of actors within the same entrepreneurial ecosystem are mostly consistent in what they outline as the boundaries of their entrepreneurial ecosystem.

Furthermore, we do find differences in the type of boundaries across the three entrepreneurial ecosystems in terms of geography and sector. We summarize the geographical, sectoral, and dominant boundaries of each ecosystem in Table 3. In this study, we define the three entrepreneurial ecosystems at the regional level. This is in line with previous work that also covers the Netherlands (e.g., Content et al., 2020; Leendertse et al., 2022; Roso et al., 2021; Schrijvers et al., 2023; Stam and van de Ven, 2021).

We define an interaction as a cross-boundary interaction when the interaction occurs between an actor (e.g., entrepreneur, local government, university) located in a focal regional entrepreneurial ecosystem and another actor located outside of this focal regional entrepreneurial ecosystem. To acknowledge the embedded nature of the entrepreneurial ecosystems, we do not consider interaction with a national or international (semi-)governmental organization as a cross-boundary interaction, as all three regional ecosystems are embedded in the same national and international (semi-)governmental ecosystems.

In line with the research question, we asked actors to name concrete examples of cross-entrepreneurial ecosystem interactions and to describe these examples. We asked them to provide examples of interactions they perceived as successful and unsuccessful and about their motivation to (not) interact with

actors in other ecosystems. In total, we interviewed 66 actors using a semi-structured interview guide. We continued collecting data and performing interviews until we reached theoretical saturation in each of the three regional entrepreneurial ecosystems and for each actor type (Hennink et al., 2017; Van Rijnsoever, 2017). All interviewees gave permission to record and transcribe their interviews. The final interview guide can be found in the Appendix 1.

3.3 Data analyses

For our data analyses, we used the method of Gioia et al. (2013). The first step of this method is to create first-order concepts; each statement is coded based on its essence (Gioia et al., 2013). Subsequent categorization involved the creation of second-order concepts, translating and grouping informant-centric concepts to more theoretical second-order themes (Gioia et al., 2013). These second-order themes are then related to the overall aggregate dimension, in our case, cross-entrepreneurial ecosystem interactions. An overview of the data structure is provided in Table 4.

As part of our analysis, we coded the motivations of entrepreneurs for cross-entrepreneurial ecosystem interactions as perceived by themselves and other actors. Here, after inductively deriving the theory from the data using Gioia et al. (2013), we found that the individual motivations of entrepreneurs to cross entrepreneurial ecosystem boundaries could, abductively, be linked to the ten elements of entrepreneurial ecosystems (Stam, 2015; Stam and van de Ven, 2021). We thus link our findings regarding actor motivations for interactions to the entrepreneurial ecosystem framework of Stam (2015) and use the theoretical framework to abductively explain the phenomenon (Goldkuhl & Cronholm, 2010).

Table 3 Characteristics of the three entrepreneurial ecosystem boundaries

	Eindhoven	Utrecht	Wageningen
Geographical boundaries	The Eindhoven agglomeration (NUTS-3) embedded in the province (NUTS-2)	The province level (both NUTS-2 and NUTS-3)	The area around the university campus with a nesting component that is a mix of the province (NUTS-2) level or of two provinces (part of the same NUTS-1)
Sectoral boundaries	Weak boundaries around high-tech	Not applicable	Strong boundaries around agrifood
Dominant boundary	Geographical	Geographical	Sectoral

Table 4 Data structure

First-order concept	Second-order theme	Aggregate dimension
Access to resources	Individual motivations	Cross-entrepreneurial ecosystem interactions
Only support start-ups within the region	Regional development logics	
Require start-ups to move for support		
Prevent start-ups from moving		
Stimulate other actors to think regionally		
Self-reinforcing networks		
Get access to resources	Start-up development logics	
Share knowledge with similar actors		
Facilitate interactions across the entrepreneurial ecosystem		
Provide support to entrepreneurs outside of the entrepreneurial ecosystem		
Territorial boundary descriptions	Geographical boundaries	
Actor boundary descriptions		
Activity boundary descriptions		
Actor boundary descriptions	Sectoral boundaries	
Activity boundary descriptions		

In further analyzing actors' behavior and decision-making to interact within and beyond entrepreneurial ecosystem boundaries reoccurring behavioral patterns emerged. After an initial round of 23 interviews, the patterns in our data pointed to specific decisions or institutional logics that the actors in our study seemed to adhere to. We proceeded with iteratively coding our (new) interviews using an institutional logics lens to make sense of the observed patterns. We identify two underlying logics that we found to influence cross-entrepreneurial ecosystem interactions. We describe these logics and how they influence cross-entrepreneurial ecosystem interactions. In addition, we cross-code the identified motivations to the institutional logics. Third, we use the two logics to characterize the three entrepreneurial ecosystems and how the logics shape cross-entrepreneurial ecosystem interactions in each entrepreneurial ecosystem. To do so, we classify the strength of the logics as "strong," "moderate," and "weak" based on the relative strength of these logics in comparison to the other entrepreneurial ecosystems in our study.

4 Findings

In the next sections, we present the findings of our research as follows. In Sect. 4.1 we describe the

individual motivations of actors to engage in interactions across entrepreneurial ecosystems and abductively link these actor motivations to the entrepreneurial ecosystem elements by Stam (2015). In Sect. 4.2, we describe how the institutional context influences interactions across entrepreneurial ecosystems. We link the patterns that emerged from the data to institutional logics (Thornton & Ocasio, 2008). In Sect. 4.3, we use the logics to characterize the three entrepreneurial ecosystems in our study. We describe the different logics combinations and discuss how these combinations influence interactions across entrepreneurial ecosystems.

4.1 Motivations for entrepreneurial ecosystem interactions

In this section, we describe the motivations of actors to engage in cross-entrepreneurial ecosystem interactions. We structure the different motivations by, abductively, linking them to the entrepreneurial ecosystem elements as defined by Stam (2015). We find that access to each of the ten elements can be a motivation for entrepreneurs to engage in interactions; the interactions are driven by a desire of actors to obtain access to resources. Access to finance, specific knowledge, and customers (demand) are most frequently discussed. This aligns with previous research on transnational entrepreneurship and venture capital flows

(e.g., Abd Hamid et al., 2023; Fuller-Love & Akiode, 2020; Schäfer et al., 2024). In addition, we see that the presence of intermediaries is a fourth element that frequently, but less often than the other three elements, drives interactions. More surprisingly, we identify interactions that are initiated because actors prefer the (entrepreneurial) culture or formal regulations in a different entrepreneurial ecosystem. For these actors, the culture or formal regulations are a type of resource.

Finally, we observe that the quality of (personal) life in a region can be a driver for cross-ecosystem interaction. More specifically, we find that several entrepreneurs remain located in another region than where they established their business as they appreciate their life. This individual motivation is not covered in the existing framework of Stam (2015). Therefore, we added this motivation as an additional element in Table 5. In Table 5, we provide an overview of the identified individual motivations of entrepreneurs as perceived by the entrepreneurs themselves and other entrepreneurial ecosystem actors to interact across the boundaries of entrepreneurial ecosystems, using a set of example quotes.

4.2 Entrepreneurial ecosystem support logics: regional development logics vs. start-up development logics

Our findings show that not all actors structurally engage in cross-entrepreneurial ecosystem interactions. Our data points to two underlying logics that influence the extent to which actors engage in cross-entrepreneurial ecosystem interactions. We named these logics the *regional development logics* and *start-up development logics*. Here, regional development logics reflect support behaviors, rules, and conditions that prioritize developing and growing the region (irrespective of start-up development), whereas start-up development logics reflect support behaviors, rules, and conditions that prioritize developing and growing the start-up (irrespective of regional development). One set of logics does not exclude the other.

We find both logics in all three ecosystems, and although actors can be guided by both logics, we often observe that actors predominantly follow one of the two logics. In the following sections, we ground these two logics in our empirical data. We first describe each set of logics. Second, we outline which actors adhere most closely to each set of logics. Third, we describe how the logics influence

cross-entrepreneurial ecosystem interactions. The two logics, how they manifest in influencing interactions, and exemplary quotes can be found in Table 6.

4.2.1 Regional development logics: The enactment of boundaries

Regional development logics reflect entrepreneurial support behaviors, rules, and conditions that lead them to prioritize developing and growing the region. This can relate to regional economic growth but also to addressing regional societal challenges. The actors that adhere to these logics most closely are (semi-) public actors: provinces, municipalities, and regional development agencies. These actors have an explicit regional focus in their mission, and this focus shapes their entrepreneurial support behavior. We also find the regional development logics with universities, some entrepreneurial support organizations, and even some (private) investors.

The regional development logics are, for some actors, the driver to be active in the entrepreneurial ecosystem. In their perspective, entrepreneurship is a means to a broader regional goal. This is illustrated by LG_U3, who states that the primary reason that the province is involved in the entrepreneurial ecosystem is that they believe start-ups and scale-ups can help address societal challenges in the region.

We find that actors who adhere to regional development logics typically enact the boundaries of administrative regions to become the boundaries of entrepreneurial ecosystems. These actors are less likely to interact across boundaries themselves, and they shape potential interactions of other actors in several ways. The influence of regional development logics on cross-boundary interactions can be direct and impactful or indirect and subtle. The regional development logics shape the behavior of actors in the entrepreneurial ecosystem in several ways.

First, we find that actors who follow the regional development logics only provide support to certain start-ups. This can happen in a direct way through the design of support structures, ESO_W1: “A part of our funding comes from the province and that needs to be directed to companies that have an impact in the Wageningen region.” Or it can happen in an indirect way, if actors chose to put less/no effort in engaging with start-ups from outside the region, LG_U1: “Contact with [start-ups, incubators, investors] in other regions

Table 5 Overview of example quotes for cross-ecosystem interactions per entrepreneurial ecosystem elements

EE element	Example quotes for cross-ecosystem interactions motivation
Physical Infrastructure	<p>“Location is a key reason why start-ups move here.” (LG_U2)</p> <p>“The lack of available connections to the electricity grid means some companies relocate to other regions.” (RDA_E2)</p> <p>“Some start-ups come to Wageningen for access to laboratories.” (UNI_W6)</p>
Demand	<p>“We can connect start-ups to large corporates in the agrifood and if they can contribute to their business, they have a big impact.” (ESO_W1)</p> <p>“We now launch our product in the USA.” (SU_E3)</p> <p>“[Start-up] wanted to move their business to our region because the people in the region were more likely to be customers.” (LG_U4)</p>
Intermediaries	<p>“The start-up moved here because the AI theme of the incubator matched their business.” (ESO_U2)</p> <p>“Start-ups come here because of the thematic focus on the game industry at our incubator.” (ESO_U5)</p> <p>“We moved from Amsterdam to Eindhoven to work with this specific venture builder.” (SU_E5)</p>
Talent	<p>“[Start-up] wanted to move to Utrecht because they felt it was easier get access to talented employees.” (LG_U2)</p> <p>“Some start-ups come to Wageningen because they want to be as close to the students as possible.” (UNI_W6)</p> <p>“We are partly located here due to the strong connections with universities in the region. This allows us to find relevant talent and exchange knowledge.” (SU_U1)</p>
Knowledge	<p>“Start-ups come here from other universities because they have an agriculture or food solution.” (ESO_W3)</p> <p>“We are in different regional ecosystems to get access to the specific knowledge in that ecosystem.” (SU_W1)</p> <p>“If I need knowledge about greenhouses I get in my car and drive to “Het Westland” [a region with many greenhouses].” (SU_W5)</p>
Finance	<p>“In the past, investments for companies in Utrecht came from other regional development agencies, but that required moving to that region.” (RDA_U1)</p> <p>“Start-ups that leave the region go to Amsterdam to be closer to an investor.” (LG_U4)</p> <p>“We made an investment with two different regional development agencies.” (RDA_U1)</p> <p>“A lot of the early-stage finance is regionally bounded, so when we moved our business, this influenced where we could receive funding.” (SU_E5)</p>
Leadership	<p>“We are starting up collaborations across the regions, to start using the same language.” (ESO_U2)</p>
Culture	<p>“We see that the vibe in Utrecht is less about the lifestyle, and we are more down to earth, and some science start-ups really appreciate that.” (ESO_U2)</p> <p>“I am located here because I like the culture, the mindset.” (SU_E1)</p>
Formal institutions	<p>“That location was less attractive because the necessary environmental permits were not present.” (SU_W6)</p> <p>“We [municipalities] connect to lobby together for [regulation] changes at the national level.” (LG_1)</p> <p>“If we would have had the same opportunities regarding regulatory procedures in the Netherlands we would focus our attention here [instead of on the USA or UK].” (SU_E8)</p>
Networks	<p>“We are active in two ecosystems to get access to the respective networks.” (SU_W1)</p> <p>“[They] a start-up moved to the region for better connection to actors.” (LG_U2)</p> <p>“We get asked to co-invest outside of our region due to our network in the production supply chains in the Eindhoven region.” (INV_E2)</p>
Quality of (personal) life	<p>“My family is here, so it’s ideal to be in the Eindhoven region.” (SU_E2)</p> <p>“The decision to move didn’t have to do with the start-up, it was for my personal life.” (SU_W4)</p> <p>“They [other actors] even suggested that the founders should themselves move their home to the region, which we didn’t want to do.” (SU_E5)</p>

happens less. [Only] if a start-up from another region reaches out and wants to come to this region then we can help.” In these cases, the regional development logics entail that start-ups from outside the focal

regional entrepreneurial ecosystem cannot get access to resources in the focal entrepreneurial ecosystem. Interestingly, regional development logics not only influence cross-boundary interactions, but these logics can also

Table 6 Overview of the logics, their influence on interactions, and example quotes

Logics	Logics' influence	Example quotes
Regional development logics	Only support start-ups within the region	<p>“We are focused on the 21 municipalities that are partners of Brainport. Our [support] activities really focus on this region.” (RDA_E1)</p> <p>“A part of our funding comes from the province and that needs to be directed to companies that have an impact in the Wageningen region.” (ESO_W1)</p> <p>“If it is a marketing start-up that is great, but we won't put extra energy in [supporting the start-up], because it doesn't really fit our economic agenda, which focusses on societal challenges.” (LG_U1)</p> <p>“I want to help and invest in entrepreneurs, but I don't want to be stuck in traffic. So that's why I want to keep start-ups inside the region.” (INV_U1)</p>
	Require start-ups to move for support	<p>“Moving our start-up to Eindhoven was a requirement to join the start-up support program.” (SU_E5)</p> <p>“If you get an investment from a particular regional development agency then you must move to that region.” (ESO_W3)</p> <p>“If a start-up can't find investments in their region but we, or another investor, are willing to invest it can be that they are required to move to our region.” (RDA_E3)</p> <p>“I know founders who move to a specific region, to get investments from the regional development agency of that region.” (SU_W5)</p>
	Prevent start-ups from moving	<p>“It happens that start-ups are told: You can't relocate to another region because we are one of your funders.” (ESO_U2)</p> <p>“The regional development agencies might state in the financial terms that start-ups have to remain in the region.” (UNI_W4)</p> <p>“The regional development agency are upset when start-ups move, they compete with each other instead of looking at the big picture.” (ESO_W3)</p> <p>“The key issue is you get in these procedures, and they take so long that it harms the innovative potential of the country.” (INV_E1)</p>
	Stimulate other actors to think regionally	<p>“For us the regional economic agenda is crucial. When we talk with start-up incubators they have a broader perspective. And we try to focus them more on the regional economic agenda.” (LG_U1)</p> <p>“The goal is to have the incubator really in the region, embedded in the region.” (ESO_E1)</p> <p>“The municipality frequently asks us [an ESO] did we lose start-ups to other regions.” (ESO_U1)</p> <p>“The municipality wants to attract, but especially to keep entrepreneurs inside the region.” (INV_U1)</p>
	Self-reinforcing networks	<p>“We don't have as strong of a network outside as inside the region.” (RDA_E1)</p> <p>“The collaboration here in the region is very intensive.” (ESO_E1)</p> <p>“In [the province] everyone knows everyone.” (UNI_E2)</p> <p>“There are very strong connections in the region, we all help each other.” (INV_E2)</p> <p>“One of the most problematic things in the Netherlands is that we don't have initiatives to connect founders from different regions with each other.” (SU_E7)</p>

Table 6 (continued)

Logics	Logics' influence	Example quotes
Start-up development logics	Get access to resources	See Table 5
	Share knowledge with similar actors	<p>“I participate in several knowledge networks in which all people with a similar role as I at public organizations are present.” (LG_U1)</p> <p>“We are one of the initiators of Incubators United, which is a collaboration between all university incubators in the Netherlands.” (ESO_U2)</p> <p>“We have a regular meeting, every 6 weeks, with technology transfer offices of the 4TU and TNO where we discuss cases.” (UNI_W4)</p> <p>“I try to collaborate with other regional development agencies as much as possible.” (RDA_U1)</p> <p>“We have good personal connections with the other ROMs and exchange knowledge.” (RDA_E2)</p>
	Facilitate interactions across the entrepreneurial ecosystem	<p>“I would like to invite our community for other events [outside the entrepreneurial ecosystem]. And if someone then moves regions, well than that's the way it is.” (ESO_U1)</p> <p>“An example is a start-up from Delft that makes bio receptive concrete, which enables concrete facades with moss. In Delft there is knowledge about concrete but less about moss, so we connected them with knowledge from the WUR.” (UNI_W4)</p> <p>“We had a life-sciences start-up that we, on purpose, forwarded to Utrecht and they were very satisfied with the result.” (ESO_E1)</p> <p>“I [municipality start-up officer] prioritize start-ups and if I am forced to choose between the interests of the municipality and a start-up I lean towards the start-ups.” (LG_1)</p>
Provide support to entrepreneurs outside of the entrepreneurial ecosystem	<p>“They are located in Delft but we have great connections in the industry so they joined our programme but are still located in Delft, but connecting them to our network is relevant. (ESO_W1)</p> <p>“We now have a start-up from Utrecht, who wasn't happy with the support there, but the colleague in Utrecht said. We can't get him on board so if you can that's better.” (ESO_E1)</p> <p>“We get support from Novel-T [entrepreneurial support organization outside Utrecht] but set up our office in the incubator in Utrecht. The incubators enabled this by working well together.” (SU_U5)</p>	

result in start-ups within an entrepreneurial ecosystem not getting support if the start-up is seen as misaligned with the regional development goals, LG_U1: “If it is a marketing start-up that is great but we won't put extra energy in [support to that start-up] because it doesn't really fit our economic agenda, which focusses on societal challenges.”

Second, actors adhering to the regional development logics sometimes require start-ups to move to their region as a condition for providing support. This is most often an indirect form of influencing interactions; it limits the opportunities. However, it can also be direct if this requirement prevents start-ups from getting access to support from actors outside their focal entrepreneurial ecosystem. This behavior is considered to be widespread and is illustrated by ESO_W3: “If

you get an investment from a particular regional development agency then you must move to that region.” An extreme example was provided by RDA_E1 about a start-up with an office in three different regions to get access to support in each region. We find that start-ups struggle with these dynamics. For example, start-up SU_E1 observes that, even though they did not want to relocate: “if moving regions is a requirement to get investments then we will have to consider that.” Similarly, start-up SU_W5 states: “The regional development agencies set up boundaries, the start-ups and the money must stay in the province. That is a poisonous combination. You shouldn't do that with a start-up.”

If actors from multiple entrepreneurial ecosystems simultaneously engage in this behavior, start-ups can only get access to specific resources from one

entrepreneurial ecosystem. As a result, being part of one regional entrepreneurial ecosystem limits or even prevents their access to certain resources in the other entrepreneurial ecosystem.

Start-up SU_W5 also indicates that actors are becoming more flexible with these boundaries. This sentiment is shared by several actors who indicate that the competition between regions is becoming less prominent due to increased collaboration between the regional development agencies. Interestingly enough, several actors observe that some start-ups try to profit from these regional development logics by trying to negotiate more investments in another region. We noticed an example of this while present at a session in Eindhoven where the start-up stated, “I am also talking to the LIOF [regional development agency of another province, Limburg] and they are very interested.” Some entrepreneurs seem to understand how entrepreneurial ecosystem actors are driven by regional stakes and try to use that to create a strategic advantage.

Third, actors prevent start-ups from relocating to other regions due to the past support they provided. This is the most direct and impactful form of limiting, or even preventing, interactions. ESO_U2 describes: “It happens that start-ups are told: You can’t relocate to another region because we are one of your funders.” Similarly, ESO_W3 provides an example of a regional development agency that became upset when a start-up did move regions. This serves as an extreme illustration of how regional development logics influence cross-entrepreneurial ecosystem interactions.

Fourth, we find that actors stimulate other actors to think and act along the lines of the regional development logics. This is mostly an indirect way through which the regional development logics influence interactions. This is illustrated by LG_U1: “For us the regional economic agenda is crucial. When we talk with start-up incubators they have a broader perspective. And we try to focus them more on the regional economic agenda.” As a result, actors are stimulated to only support start-ups within the entrepreneurial ecosystem. A more direct way to stimulate this is by designing the KPIs of entrepreneurial support actors so that support must be directed toward regional start-ups. Consequently, we find that these other actors (often entrepreneurial support organizations) begin to adhere to the regional development logics and enforce the regional boundaries set by other actors.

Fifth, we find that the regional development logics and the resulting enactment of entrepreneurial ecosystem boundaries have a self-reinforcing effect through networks. This is a fully indirect way through which the regional development logics influence interactions. We find that the actors in entrepreneurial ecosystems consistently spend time and effort to connect entrepreneurs to their networks. The regional development logics cause these networks to have a strong regional component. RDA_E1 illustrates this by stating: “We don’t have as strong of a network outside as inside the region.” As a result, start-ups are often not connected to potentially relevant partners from outside the region, as these partners are not part of the existing networks of entrepreneurial ecosystem actors. SU_E7 adds: “One of the most problematic things in the Netherlands is that we don’t have initiatives to connect founders from different regions with each other, as a result we live in separate bubbles.” Followed by: “This is really not ok.” The overall dynamic is summarized by ESO_U1 who states that “I think that the regional boundaries are still somewhat limiting, and they shouldn’t be.”

Regarding the interplay between motivations and regional development logics, we find that regional development logics have the most direct and impactful influence when cross-boundary interactions concern finance. On the other hand, we do not find a direct influence on the cross-boundary interactions between start-ups and (potential) customers. This crucial type of relation is, mostly, exempt from the dynamics caused by the regional development logics. The exception is through the indirect effect of networks. Entrepreneurial ecosystem actors are less likely to connect start-ups to potential customers outside of their region due to the weaker networks outside their region.

In sum, we find that actors who adhere to regional development logics often limit, and sometimes prevent, cross-entrepreneurial ecosystem interactions. They do so by enacting the boundaries of administrative regions, which causes these boundaries to also become the boundaries of entrepreneurial ecosystems. Most of these boundary enactments have an indirect influence on cross-boundary interactions, while direct intrusive boundary enactments happen less frequently and are almost exclusively the result of finance.

4.2.2 Start-up development logics: Facilitating cross-entrepreneurial ecosystem interactions

Start-up development logics reflect entrepreneurial support behaviors, rules, and conditions that prioritize developing and growing start-ups. The start-up development logics mean that start-up support is prioritized independent of regional development goals. We, obviously, see that the start-up development logics are closely adhered to by the entrepreneurs themselves. In addition, entrepreneurial support organizations, start-up support platforms, and investors strongly adhere to these logics. To a lesser extent, universities, regional development agencies, provinces, and municipalities sometimes prioritize in line with the start-up development logics.

The support to start-ups often manifests in the form of providing resources, advice, or network connections. Actors who adhere to the start-up development logics often believe that the eventual goal, economic growth or addressing societal challenges, will follow from start-up success. We find that prioritizing along the start-up development logics means that actors allow or stimulate cross-entrepreneurial ecosystem interaction. The start-up development logics shape the behavior of actors in the entrepreneurial ecosystem in several ways.

First, we see that entrepreneurs who act in their own interest and/or are enabled by the start-up development logics engage in cross-entrepreneurial ecosystem interactions to get access to resources. They follow the start-up development logic, irrespective of the degree to which their actions affect regional development. This manifestation of the start-up development logics by entrepreneurs matches the motivations for cross-entrepreneurial ecosystem interactions that we outlined in Sect. 4.1 and Table 5.

Second, we find that entrepreneurial ecosystem actors facilitate start-ups to engage in interactions with actors from outside the entrepreneurial ecosystem. An example of this is provided by incubator ESO_U2 who states, “Eventually, you draw the conclusion we can’t offer you [a start-up] this knowledge in Utrecht, but they can in Leiden. So we connected them to the incubator in Leiden for them to move there.”

Third, entrepreneurial ecosystem actors engaging in the start-up development logics provide support to start-ups that are not from their own region. This is illustrated by incubator ESO_W1 who states that: “If there is a greenhouse start-up somewhere else, they

will call us. Then we make a connection.” An example is given for a specific start-up. “They are located in Delft but we have great connections in the industry so they joined our programme but are still located in Delft, they don’t have to come to Wageningen but connecting them to our network is relevant.” Start-ups consider this type of behavior as beneficial for their development. This is illustrated by start-up SU_W1: “We are embedded in two ecosystems. Noordwijk where there is a lot on aerospace, and Wageningen with agrifood and that combination is beneficial for us.”

Fourth, we see that actors interact with actors who have the same function in other ecosystems to improve the quality of the start-up support that is provided by both actors. An example is given by RDA_W1 from the regional development agency, who states that “There is the establishment of ROM Nederland, in which we as regional development agencies discuss and align our actions.” These interactions are mainly aimed at sharing knowledge, improving the quality of intermediate service, and to change regulations by organizing a shared lobby at the national level. They are perceived to help improve the support offered to start-ups: ESO_U2: “The collaboration with other incubators works nicely, we can create a soft-landing for start-ups in other ecosystems.”

We thus find that prioritizing the start-up development logics allows for or facilitates cross-entrepreneurial ecosystem interactions. Several actors, who adhere to the start-up development logics, express frustration with how the regional development logics create boundaries that they argue reduces the opportunities for productive entrepreneurs. This sentiment is expressed by INV_E1 who summarizes it as: “In the Netherlands, regional barriers don’t make sense, but they are there because of the behavior of certain actors.” This sentiment also caused start-up SU_W5 to remark: “My advice is to stop thinking along regional boundaries. The Netherlands are too small for that.”

4.3 Toward characterizing entrepreneurial ecosystems through the regional development and start-up development logics

In this section, we explore how the identified logics can be used to characterize entrepreneurial ecosystems and reflect on how different logics’ strengths and their interplay influence cross-entrepreneurial

ecosystem interactions. We discuss how the historical patterns in the entrepreneurial ecosystem, as described by actors, may influence the combination of logics. We summarize this overview by mapping the relative position of the three regional entrepreneurial ecosystems along the regional development and start-up development logics (Fig. 1).

In Eindhoven, we find moderate regional development logics and the strongest start-up development logics. The informants describe how the historical development of the Eindhoven region has been strongly influenced by the role of several dominant large firms, such as Philips and ASML. These firms have strong regional ties and emphasize the importance of these ties. Historically, the performance of these firms has gone hand in hand with the performance of the region. This cumulated in a strong perception that what is good for the firm is good for the region and what is good for the region is good for the firm. The entrepreneurial ecosystem resembles this perspective.

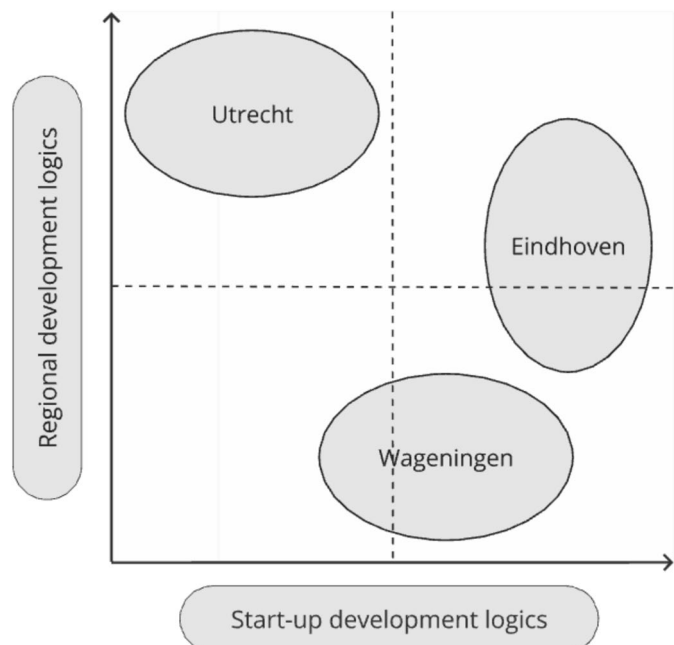
In this entrepreneurial ecosystem, the two logics are more intertwined than in the other entrepreneurial ecosystems. The result is an entrepreneurial ecosystem in which actors embrace both logics. Regional actors (regional development agencies, province, municipalities) often prioritize in line with the start-up development logics and entrepreneurial support organizations and investors often prioritize in line

with the regional development logics. Good illustrations of this are provided by LG_1 who, as the dedicated start-up officer of the municipality, states: “I prioritize start-ups and if I am forced to choose between the interests of the municipality and a start-up I lean towards the start-ups.” While ESO_E1 from the university entrepreneurial support agency states that “[We] find the region so important that we sometimes place the interest of the region above the interest of the university.” These dynamics create a favorable entrepreneurial ecosystem.

A downside that we observe is related to the networks. The Eindhoven entrepreneurial ecosystem has a strong focus on regional networks, which means that networks across the boundaries of the entrepreneurial ecosystem are weaker. As a result, start-ups who require resources that are not present in the entrepreneurial ecosystem can have a harder time connecting to actors outside the region or are even stopped by regional actors from doing so. This relatively closed network also has an influence on non-Eindhoven start-ups who try to connect to this ecosystem. SU_W4 indicated that he tried to connect into the Eindhoven entrepreneurial ecosystem and found it difficult to do so.

In Wageningen, we observe the weakest regional development logics and moderate start-up development logics. The interviewees describe how, historically,

Fig. 1 Mapping the three regional entrepreneurial ecosystems in relation to regional and start-up development logics



the positioning of Wageningen University as a world-leading agricultural university plays an important role. This has led to a strong focus on the agrifood sector and a multitude of companies from this sector locating on the Wageningen campus. As a result, actors are very much driven by the focus on the agrifood sector and contributing to that sector. This outweighs the importance of regional boundaries. RDA_W1, from the regional development agency, stated: “The regional boundaries are to a certain degree important for provinces, but they are also not the sole factor.” As a result, the regional development logics are weaker. Nevertheless, the regional development logics still play a role as illustrated by ESO_W1: “A part of our funding comes from the province and that needs to be directed to companies that have an impact in the Wageningen region.” This is in line with our classification in Table 3 that in Wageningen sectoral boundaries are more important than geographical boundaries.

We classify the strength of the start-up development logics in Wageningen as moderate. Several actors have a clear focus on providing the best support possible to start-ups. However, the focus on the agrifood sector means that entrepreneurship, by other actors, is often considered a means to an end: “I believe strongly that start-ups play a crucial role in achieving societal transitions.” (UNI_W4) and “Sustainable entrepreneurs play a crucial role in addressing societal challenges” (UNI_W8). The sectoral focus means that the development of start-ups is not always prioritized, as some actors also look to incumbent firms or the university for the intended solutions. This combination results in moderately strong start-up development logics.

The combination of weaker regional development logics and moderate start-up development logics results in a repeated willingness by actors to support start-ups across the geographical boundaries of the entrepreneurial ecosystem. This is illustrated by incubator ESO_W1 who states that: “They are located in Delft but we have great connections in the industry so they joined our programme but are still located in Delft, but connecting them to our network is relevant.”

In Utrecht, we see the strongest regional development logics and the weakest start-up development logics. Historically, there were relatively fewer large companies in the region, and these companies do not consider being from Utrecht as part of their identity. This is widely perceived, by interviewees, as a weakness of the region and has resulted in an entrepreneurial

ecosystem in which actors feel the need to compensate for this absence. As a result, we see that several governmental actors play an active role in the entrepreneurial ecosystem. These actors have an explicit regional focus in their mission and bring this focus to their activities in the entrepreneurial ecosystem. These actors see entrepreneurship as a means to their goal, addressing societal challenges. This strengthens the regional development logics and establishes them as a clear priority.

In Utrecht, the regional development and start-up development logics still often align. A strong performance of a start-up within a region yields positive results that are in line with both the regional development and the start-up development logics. This is illustrated by ESO_U2, who states that because of their support to start-ups: “The municipality is happy that we function as a driver in job creation and the province is happy because we help improve the attractiveness of our region.” However, in cases where the logics do not align the regional development logics dominates, as the start-up development logics are less widespread. The potential negative effects of this are outlined by ESO_U5: “An exclusive focus on game start-ups for societal missions by the province means that I cannot provide the support to the other game start-ups who form the foundation of an ecosystem that those start-ups who focus on societal missions rely on.”

We find that several Utrecht-based entrepreneurial support organizations primarily act upon the start-up development logics. However, these actors are simultaneously being influenced by the regional development logics of governmental actors who are their key funders. This is illustrated by LG_U1, who states, “There is friction between the goals of the municipality and the goals of start-ups. Look, for us the regional economic agenda is crucial.” The result is that these actors indicate that they are somewhat constrained in their ability to actively work on stimulating cross-entrepreneurial ecosystems interactions.

5 Discussion

5.1 Conclusion

Recently, various scholars (e.g., Fischer et al., 2022; Schäfer, 2021; Wurth et al., 2022) have critiqued entrepreneurial ecosystem research on the basis of ignoring the influence of “outside” interactions, such

as those with actors from other entrepreneurial ecosystems (Theodoraki & Catanzaro, 2022; Xu et al., 2023). We addressed this issue by answering the following research question: *What influences interactions across the boundaries of entrepreneurial ecosystems?* We do so by drawing on in-depth case studies of three entrepreneurial ecosystems in the Netherlands.

First, we explored the individual motivations of entrepreneurs to interact across the boundaries of their regional entrepreneurial ecosystem. We find that entrepreneurs primarily interact across the boundaries of their entrepreneurial ecosystem to get access to resources. We find interactions related to all ten entrepreneurial ecosystem elements (Stam, 2015). Especially, access to finance, specific knowledge, and to customers (demand) are a frequent driver of interactions, followed by access to intermediaries. Furthermore, we identify the quality of personal life as another motivation for actors to interact across boundaries. This aligns with previous work (Florida, 2006; Lee et al., 2004) that quality of life is important in the location decision of entrepreneurs.

Second, we explored how the institutional context influences the ability of actors to engage in cross-entrepreneurial ecosystem interactions. We find that this ability is influenced by two types of logics. Start-up development logics, which enable interactions across ecosystem boundaries, and regional development logics often prevent interactions as they cause actors to transform administrative boundaries into entrepreneurial ecosystem boundaries. The influence of the regional development logics motivations seems most prominent in relation to accessing financing resources and least prominent when it relates to connecting with customers.

5.2 Theoretical implications

Our paper has several theoretical implications that relate to the interactions across entrepreneurial ecosystems (see Wurth et al., 2022). First, we find that individual entrepreneurs are motivated to interact across entrepreneurial ecosystem boundaries to obtain access to resources. This means that future research should consider cross-entrepreneurial ecosystem interactions. We thus join recent calls to consider interactions across entrepreneurial ecosystem boundaries more consistently (Fischer et al., 2022; Schäfer, 2021; Wurth et al., 2022).

Second, we identify two underlying logics that influence when and how actors choose (not) to cross entrepreneurial ecosystem boundaries: regional development logics and start-up development logics. These institutional logics influence whether actors act upon their motivations. Regional development logics reflect support behaviors, rules and conditions that prioritize developing and growing the region (irrespective of start-up development), whereas start-up development logics reflect support behaviors, rules and conditions that prioritize developing and growing the start-up (irrespective of regional development). Linking these logics to the logics identified by Thornton et al. (2012), the regional development logics are a manifestation of the state logics, and the actors that adhere to these logics most closely are (semi-)public actors: provinces, municipalities, and regional development agencies. These actors bring state logics to the entrepreneurial ecosystems. The start-up development logics are a manifestation of the market logics that are dominant with many of the private actors that are present in the entrepreneurial ecosystems. One set of logics does not necessarily exclude the other.

In other words, for actors that prioritize the regional development logics, engaging in the entrepreneurial ecosystem is a means to realize economic growth or social and environmental impact in the region. The entrepreneur is just one of the players via whom regional development goals can be achieved. While actors that prioritize the start-up development logics prioritize developing or supporting the entrepreneur or start-up. We find that actors adhering to the regional development logics enact the boundaries of entrepreneurial ecosystems; they transform administrative boundaries into entrepreneurial ecosystem boundaries and limit cross-entrepreneurial ecosystem interactions. This provides an argument in favor of using the administrative boundaries as entrepreneurial ecosystem boundaries (e.g., Leendertse et al., 2022; Schrijvers et al., 2023; Stam and van de Ven, 2021) an approach that has, recently, been questioned by several authors (Cho et al., 2022; Fischer et al., 2022; Schäfer, 2021). However, such research should include the interactions across these boundaries as actors who adhere to the start-up development logics do facilitate and engage in interactions across these boundaries.

We find this influence of the regional development logics in all three ecosystems. However, the strength

of the entrepreneurial ecosystem boundaries depends on the strength of the logics and the interplay between them in an entrepreneurial ecosystem. The use of these logics can help researchers understand both the strength of entrepreneurial ecosystem boundaries and the dynamics within and across entrepreneurial ecosystems. We thus encourage entrepreneurial ecosystem scholars to use these logics to shape their future studies.

Third, as a methodological contribution, we implement a novel approach that defines the boundaries of entrepreneurial ecosystems based on the boundary descriptions by entrepreneurial ecosystem actors, rather than, *ex-ante*, defining the boundaries to coincide with administrative borders (Cobben et al., 2022; Schäfer, 2021; Wurth et al., 2022). We operationalize entrepreneurial ecosystem boundaries using the conceptualization of Fischer et al. (2022) and show that this is a feasible way to operationalize entrepreneurial ecosystem boundaries. Different types of actors within the same entrepreneurial ecosystem are consistent in how they describe and conceptualize the boundaries of their entrepreneurial ecosystem, independent of the approach they took to conceptualize the boundaries. This serves as validation for this approach of defining boundaries. The strength and type of entrepreneurial ecosystem boundaries differ between the three cases and are either purely geographical or a combination of geographical and sectoral. Furthermore, in line with Schäfer et al. (2024), actors consider their entrepreneurial ecosystem to be multi-layered. Actors from different regional entrepreneurial ecosystems interact with national and international actors who they consider part of their extended entrepreneurial ecosystems. We find that the regional entrepreneurial ecosystems are separate ecosystems even though there are some national (e.g., Techleap) or international (e.g., European Union) actors and (inter)national institutions (e.g., regulations) that influence all regional entrepreneurial ecosystems. The implication is that every study on entrepreneurial ecosystems should be explicit in how and where they define boundaries. Based on our findings, we encourage future research on entrepreneurial ecosystems to explore the nestedness between the generic entrepreneurial ecosystem and specific sectoral components.

5.3 Practical implications

The two identified logics often go hand in hand: what is good for the region is often good for the entrepreneur and vice versa. However, the two logics are not always complementary; they sometimes conflict. When this is the case, regional development logics, although they make sense from a policymaker's perspective, can hurt entrepreneurs. This is particularly the case if multiple regions engage in regional development logics. The resulting competition between regions creates a suboptimal environment, which hurts entrepreneurs and, in turn, also the regional development outcomes.

We find that interacting across the boundaries of entrepreneurial ecosystems may require entrepreneurs to choose between regional ecosystems: being part of one regional entrepreneurial ecosystem has, oftentimes limiting, consequences for the access to resources and support in other regional entrepreneurial ecosystems. We find both direct and impactful as well as indirect and subtle effects. The regional development logics are especially stringent if access to finance is at play, and least stringent when access to customers (demand) is at play. However, even the indirect and subtle forms can have a negative influence on start-ups. Start-ups do not have a 20/20 vision of where they can access resources and are therefore partly dependent on the connections from other entrepreneurial ecosystem actors; the lower numbers of cross-entrepreneurial ecosystem boundaries are thus an issue for them.

We encourage entrepreneurial ecosystem actors to critically reflect on their own logics and to change behavior that has a counterproductive influence on the entrepreneurial ecosystem. We recommend actors in entrepreneurial ecosystems to (1) discuss logics and (2) connect across entrepreneurial ecosystems. We recommend discussing the logics as we find that the negative results of conflicting logics are often a blind spot; policymakers are not directly aware of the negative consequences. Discussing logics allows for addressing these blind spots. Connecting across entrepreneurial ecosystems then allows for (partial) mitigation of the conflicting logics. These connections can create shared goals and this alignment might reduce the artificial competition between

regions that we currently see. We find some early evidence that initiatives as “Incubator United” and the collaborations between different regional development agencies “ROM Nederland” are having this effect in the Netherlands.

Furthermore, we recommend actors that do not have an explicit regional mandate embedded in their mission, such as universities, entrepreneurial support organizations, or national organizations, to engage in challenging these institutional logics. We encourage these actors to play an active role in facilitating cross-entrepreneurial ecosystem interactions. Relatedly, we advise taking the potential negative effects of regional development logics into account in the interplay between national and regional policies. Our study shows how incentives for provinces or municipalities to focus on the region can create rigid entrepreneurial ecosystem boundaries that hinder start-up development at the national level. In other words, the boundaries become borders. While there are clear benefits of having regional governments active in entrepreneurial ecosystems, we recommend creating (inter)national coordination to reduce conflicting interests among regions, and thus reduce behavior that may limit economic growth and societal impact.

Finally, based on our findings regarding differences in the strength of the logics in the ecosystems and the resulting strength of entrepreneurial ecosystem boundaries, we argue that specific policy recommendations require in-depth analyses of a region that considers the boundaries of that specific entrepreneurial ecosystem. It is crucial to not base strategic decisions solely on quantitative analyses across multiple regions (e.g., Leendertse et al., 2022) but to complement it with in-depth insights obtained through qualitative analyses.

5.4 Limitations and future research

The most important limitation of our research is the case selection. We selected three high-quality entrepreneurial ecosystems with a university presence in the Netherlands. These cases are a good representation of well-developed entrepreneurial ecosystems. However, future research is needed to

show whether these findings are generalizable to other countries and to less well-developed entrepreneurial ecosystems. The patterns might be different here, as research on entrepreneurial ecosystems in rural areas shows that entrepreneurs from small towns frequently engage in interregional interactions (Mayer et al., 2016; Meili & Shearman, 2019; Motoyama & Henderson, 2023). In particular, the balance of the logics and the resulting outcomes are unique for different entrepreneurial ecosystems and might show strong differences between countries and between high- and low-quality entrepreneurial ecosystems. It could, for example, be the case that the regional development logics play a much smaller role in more centralized countries or countries without regional development agencies.

Alternatively, it would be interesting to study the influence of digital technologies and digital entrepreneurial ecosystems on the geographical boundaries of entrepreneurial ecosystems and how these influence the degree to which the logics influence interactions (Bejjani et al., 2023). Furthermore, we find that in Wageningen, sectoral considerations play a relevant role. Future research on entrepreneurial ecosystems with a strong sectoral focus is needed to determine whether “sectoral development logics” represent a third set of relevant logics. We only describe the two sets of logics that we identified in all three entrepreneurial ecosystems.

Furthermore, we recommend exploring the quantification of the two logics to enable the study of how the strength of these two logics influences the outcomes of entrepreneurial ecosystems. As a first step in this direction, we map the logics onto a 2×2 matrix. However, future research is needed to study whether specific combinations of logics consistently have the same influence on interactions. Such research could also address how an increase in interactions influences the perceived start-up and regional outcomes. Finally, we encourage entrepreneurial ecosystem scholars to use spatial econometrics to study interactions across entrepreneurial ecosystems more formally, for example, by examining the influence of the quality of entrepreneurial ecosystems in neighboring regions on a focal region.

Appendix 1

Table 7 Detailed information about informants by entrepreneurial ecosystem and actor type, including actor codes

	Eindhoven	Utrecht	Wageningen
Start-up (SU)	SU_E1: Founder SU_E2: Founder SU_E3: Founder SU_E4: Founder SU_E5: Founder SU_E6: Founder SU_E7: Founder SU_E8: Founder	SU_U1: Founder SU_U2: Founder SU_U3: Founder SU_U4: Founder SU_U5: Founder SU_U6: Founder	SU_W1: Founder SU_W2: Founder SU_W3: Founder SU_W4: Founder SU_W5: Founder SU_W6: Founder SU_W7: Founder
Entrepreneurial support organization (ESO): incubator, accelerator, sector specific network	ESO_E1: University incubator ESO_E2: University incubator ESO_E3: Sector specific network	ESO_U1: Start-up offices ESO_U2: University incubator ESO_U3: Social entrepreneurship support organization ESO_U4: University incubator ESO_U5: Game incubator	ESO_W1: Sector specific incubator ESO_W2: Sector specific network ESO_W3: Sector specific network
University (UNI): academic staff, support staff, technology transfer office	UNI_E1: Academic staff UNI_E2: Academic staff UNI_E3: Academic staff	UNI_U1: Support staff UNI_U2: Support staff UNI_U3: Technology Transfer office UNI_U4: Support staff UNI_U5: Technology transfer office	UNI_W1: Support staff UNI_W2: Support staff UNI_W3: Technology transfer office UNI_W4: Technology transfer office UNI_W5: Academic staff UNI_W6: Support staff UNI_W7: Support staff UNI_W8: Support staff
Regional development agency (RDA)	RDA_E1: Regional development agency RDA_E2: Regional development agency RDA_E3: Regional development agency	RDA_U1: Regional development agency RDA_U2: Start-up platform	RDA_W1: Regional development agency
Local Government (LG): province, municipality	LG_E1: Municipality	LG_U1: Municipality LG_U2: Municipality LG_U3: Province LG_U4: Municipality	LG_W1: Municipality LG_W2: Municipality
(Private) Investor (INV)	INV_E1: Investment fund INV_E2: Venture Capital INV_E3: Venture Capital	INV_U1: Angel investor	INV_W1: Investor/venture builder
No. of actors	21	23	22

Table 8 Interview guide for EWUU Alliance cross-collaboration ecosystem research

Topic	Questions
Start	<p>Can I record this interview?</p> <p>We use our results to provide advice to the EWUU alliance and also for a scientific paper on the topic. Everything we share will be anonymized</p>
Introduction	<p>First of all, could you give a short description of what you do and how you ended up doing this?</p> <p>What is your ambition in your current work?</p>
Regional ecosystem	<p>Could you explain how you would define/describe the boundaries of your entrepreneurial ecosystem? / Which actors do you consider part of your entrepreneurial ecosystem?</p> <p>- Get an extensive list here</p> <p>What are the three most important actors for you in your entrepreneurial ecosystem?</p> <p>Can you please describe the interactions you have with A, B, C?</p> <p>How often do you interact with them? Please be specific</p> <p>What do you gain/provide from these interactions?</p> <p>Are there actors you faced challenges with in collaborating?</p> <p>Are there actors you do not like to collaborate with?</p> <p>What do you like best about how your EE is organized?</p> <p>What would you like to change in your EE?</p> <p>Could you provide an example of an unsuccessful ecosystem collaboration? Why did it not work out?</p>
Inter ecosystem	<p>What actors outside your entrepreneurial ecosystem do you interact with? Ask for specific examples and for these examples: Also make sure to include start-ups</p> <p>Where are they located?</p> <p>Why this specific actor? What caused the connection?</p> <p>How important are these collaborations?</p> <p>Are there collaborations that you consider to have failed? (ask for example)</p> <p>What helps you to collaborate with actors from other regions?</p> <p>What barriers do you encounter when collaborating with actors from other regions?</p>
To conclude	<p>What would you like to learn from other entrepreneurial ecosystems?</p> <p>What have we not yet discussed but do you think I should also know?</p> <p>You named X, Y, Z as examples. Would you be able to connect us with them for interview?</p> <p>Who else should we talk to with these questions?</p>
Checklist:	<ul style="list-style-type: none"> ● <i>Actors involved</i> ● <i>Frequency of interactions</i> ● <i>Form of interactions (e.g., online, f2f, etc.)</i> ● <i>Intensity of collaboration</i> ● <i>Perceived gains and societal impact</i>

Make sure to ask for the why on all questions

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Data availability The datasets generated during and/or analyzed during the current study are not publicly available due to privacy considerations for the interview respondents.

Declarations

Ethical statements The authors have read and agreed to the Committee on Publication Ethics (COPE) international standards for authors.

Conflict of interest The authors declare no conflict of interest.

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