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Borders in locally "buzzing" communication ecologies:

Scope and limitedness of entrepreneurial networks in Twente (NL) and its German "hinterland”

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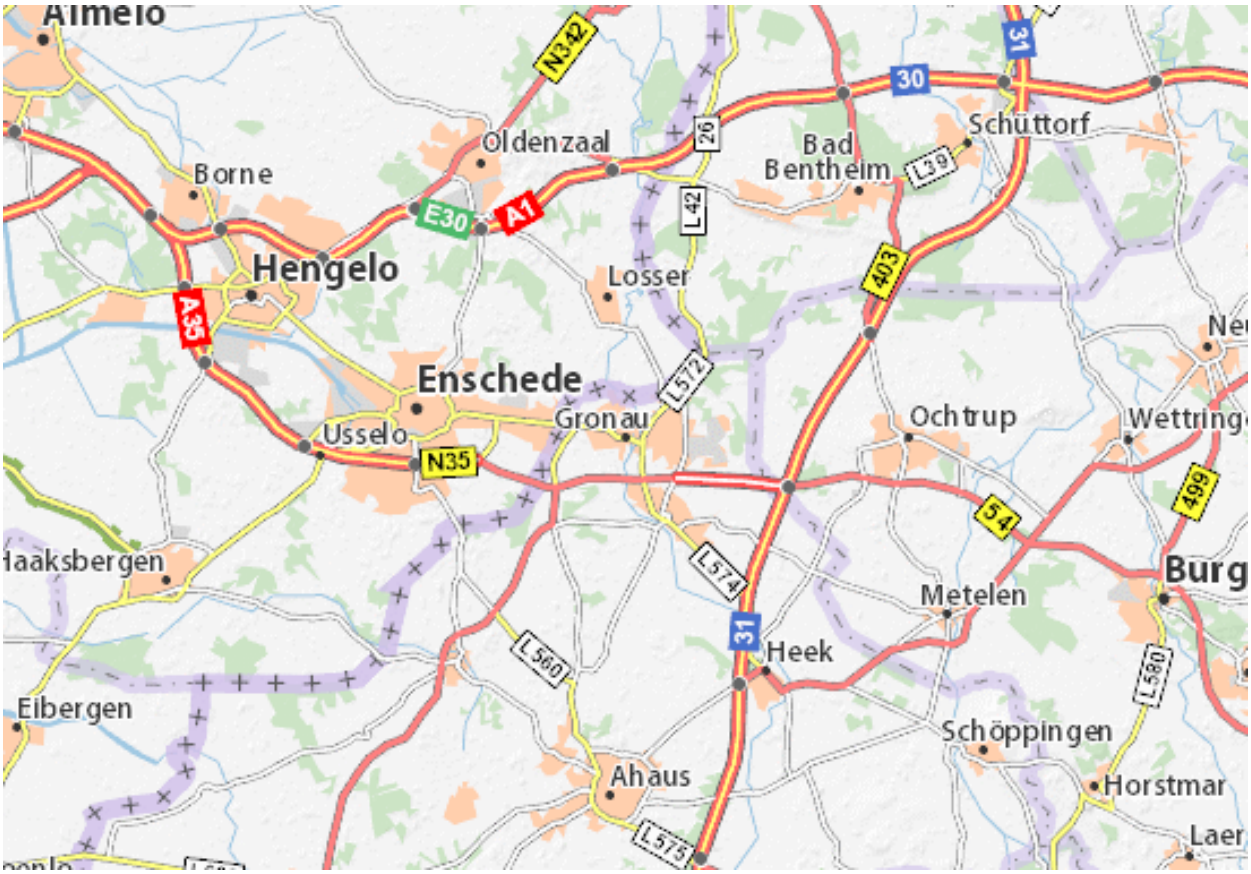
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Abstract

This research provides an understanding of network –scope and –limitedness in the communication ecology of Local Buzz in border adjacent Entrepreneurial Ecosystems.

It is found, that Local Buzz displays significant disruptions, along its tripartite research categories of *knowledge-overspills, linkages* and *interdependences* in the area under study. Extrapolating connectivity among regional anchor institutions with the methods of observations and interviews, it is shown how both scope and intensity are vastly limited to the domestic level.

These limitations are interpreted as the manifold, structural accumulation of administrative, inter-institutional "borderednesses". They are mainly visible in the way that the national state border poses a structural barrier for entrepreneurial vibrancy. Less visible, however, structural borders also exist on the domestic level, and cross-border networking is found to have an important side-effect of stimulating inter-institutional connectivity on this very domestic level.

Directly - and as a unique advantage for regional policy making in border-adjacent regions – these domestic side-effects can be employed to increase domestic connectivity and thereby regional competitiveness. Indirectly, through the critical mass of better connected entrepreneurs and decreased domestic opportunity costs, it provides ground for a more fruitful communication ecology, stimulating network-scope and intensity across the accumulated effect of the state border.

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1. INTRODUCTION

Globalisation has seen the rise of economic hotspots and entrepreneurial magnets, such as the American “Silicon Valley” or the Dutch “Brainport”. They illustrate the potentials of stimulated, vibrant and “buzzing” entrepreneurial networks. Thereby directly, regional policies can contribute to both keep and attracts crucial economic players and to indirectly enhance regional stickiness and aggregate regional welfare. The underlying research is interested in elucidating these mechanisms and providing ground for such policies in the special case of entrepreneurial networks in the border-adjacent, Dutch region of Twente and its "German hinterland".

In a globalising, knowledge-based economy with time-space-shrinking (digital) technologies, connectivity of regional networks plays an important role in firms’ competitiveness. Contra-intuitively, the regional scope allows for externality-based governance mechanisms that help to take part in an efficient division of labour and (increasingly immaterial) resources. Locally anchored, "sticky" networks of communication ecology efficiently serve for firms to be “tuned into” this increasingly global value chain. This renders regions important players in the world economy, in an assumed competition which can be at the core for both, regional growth or decline.

On a continental European scale, remaining border effects that limit regional connectivity is of special interest in the cross-border “single market”. Despite its "four freedoms", connectivity and innovation is significantly hampered at the border of European nation-states. This might be a reason for the European "growth problem" when compared to American and Asian economies.

On a regional and more particular scale, this interest is prominent for the policy making of the border adjacent European cross-border area under study, with its long-standing open borders. While networkedness[1] in non-cross-border areas often remains abstract, the concrete experience of limitations in the border-adjacent Twente regional system provides pressing social relevance for the research objective.

Methodologically, to explore the particularities of a cross-border areas like the Dutch Twente and its German “hinterland”, this research avoids to pre-suppose any network

[1] The term "networkedness" is chosen as a visible opposition to "limitedness". Largely equivalent to "connectivity", it especially underlies the dynamically evolving character of regional scope.

limitations. Instead, it derives insights on a potential limitedness from the mere mapping of linkages in the cross-national research field. "Network-limitedness" and "network-scope" are regarded as two sides of the same coin which can be framed "connectivity". Seen from this angle, "network-scope" goes beyond a mere analysis of explicit, institutionalised cross-border co-operation formats. In fact, the research extrapolates the unmarked, *normal* connectivity in a yet very *special* cross-border field.

Following up on this, as will be gradually specified in the following, the goal *in* this research is to extrapolate network-scope and limitations especially building on terminology and conceptual framework of Bathelt, Malmberg & Maskell. (2004) Local Buzz and Global Pipelines which will be explained in more detail. More specifically, it does so by asking if the glocal research field has qualities of rather a "buzzing" communication ecology or a loser set of complementary pipelines across borders. In the wider framework, it thereby contributes to specify theories on regional development as they yet, offer little explicit and comprehensive in explaining communication ecologies across borders. Based on the enhanced empirical inside, the overarching goal *with* this thesis is to solidly ground policy recommendations to address the specificities of the research field. As will be explained, this contribution is socially relevant as it enhances regional competitive- and stickiness and can thereby positively impact the aggregate welfare effect.

As an orienting foreshadowing, the following model summarises the subsequent steps of this thesis, embedding the academic research (ii-vi) into its policy frame. With each step being taken, a zoom-in of the model will be provided as a structural handhold throughout the thesis.

i) *Policy making for regional competitiveness and an enhanced aggregate welfare effect*

ii) Regional stickiness to be competitive in a globalised world economy

iii) Economics of externalities as an important precondition of regional stickiness, yet under-conceptualised for border-adjacent and cross-border areas (CBAs)

iv) Local Buzz (and Global Pipelines) as an embedded, fruitful terminological toolbox to grasp the multi-level scope for entrepreneurial connectivity in the "special case" of CBAs

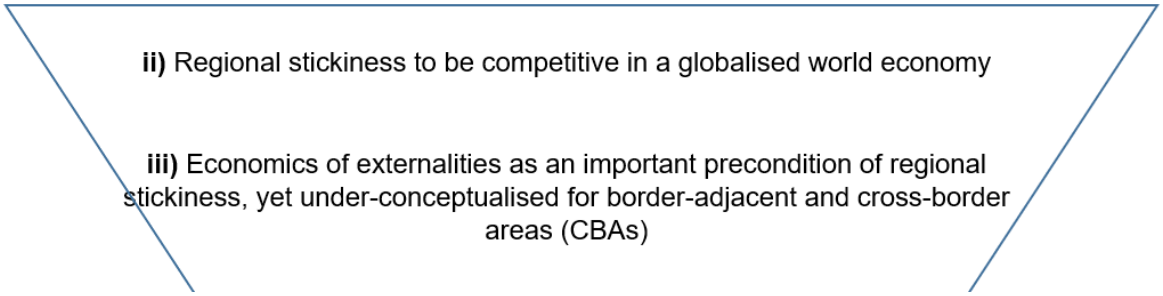
v) Entrepreneurial Ecosystem: Knowledge-spill overs, networks and finance as empirical manifestations of the main categories of Local Buzz. Identifiable among anchor institutions, identifiable via observations and interviews, and measurable in terms of entrepreneurial "interfaces"

vi) Outcome on scope and limitations of buzzing entrepreneurial networks: Limitedness in Local Buzz providing empirical insights that help to conceptualise economics of externalities in CBAs

viii) *Recommendations addressing regional policy making* ***(i)***

2a. SOCIAL RELEVANCE

i) *Policy making for regional competitiveness and an enhanced aggregate welfare effect*



Analysing the network-constituting linkages[2] in the border-adjacent area, the goal *with* this research is to provide a more solid basis for effective policy making with a long-term, positive effect on regional connectivity, competitiveness and welfare.

As indicated with the examples of Silicon Valley and Brainport, some regions are more successful than others in offering an environment of networks that enhances firms' entrepreneurial connectivity and market agility. In this context, academic concepts of innovative regional systems and Entrepreneurial Ecosystems have fostered policy alertness among regions to compete with others for talents, businesses and finance. To gain an attractive critical mass of efficient access to positive externalities and thereby global resources is pivotal to become a "sticky" region. This competitive edge is especially pressing due to circular logics of regional growth or decline which can evolve (polarization thesis, as opposed to the balancing hypothesis, cf. Chilla 2016).

Following up on the introduction, from the perspective of policymakers and the academia (Saublens 2016: 83), it is increasingly important to understand the networks that underly the non-marketed exchange of externalities. Approximating their network-scope and -limitedness allows estimating the status quo of regional connectivity. This is at the base to find approaches stimulate regional vibrancy to ultimately benefit an aggregate regional welfare effect. As will be elaborated in the foundation of the scientific relevance, current theories are wanting in providing a more holistic understanding of processes that underly regional stickiness. Crucial to mention at this point, is that this lack is surprising, given the large presence of such areas in the

[2] Defined as socio-economic ties with a bilateral and possibly collective dimension.

European Single Market.[3] [4] This is especially when zooming in to the knowledge-driven Netherlands (cf. PwC 2017), where roughly half of the population lives in close border proximity, in seven out of twelve provinces adjacent with Belgium respectively Germany. With average distances of only a few dozen kilometres to another state, the abstract notion of a borders hampering the access to a globalized division of labour and immaterial resources receives a feasible local relevance.

Within the Netherlands, the inter-municipal Dutch region of Twente (Regio Twente 2017) is an especially fruitful case. Its highly knowledge-driven[5] regional economy around the main academic anchor institutions in Enschede[6] (cf. Stone 2017) is only a few kilometres from the German border and assumedly functionally dependent "hinterland". Facing challenges in the overall aggregate welfare effect such as high unemployment (especially in the (major) city of Enschede, RTV Oost 2014), there is the political will and economic “interest to do something with Germany”.

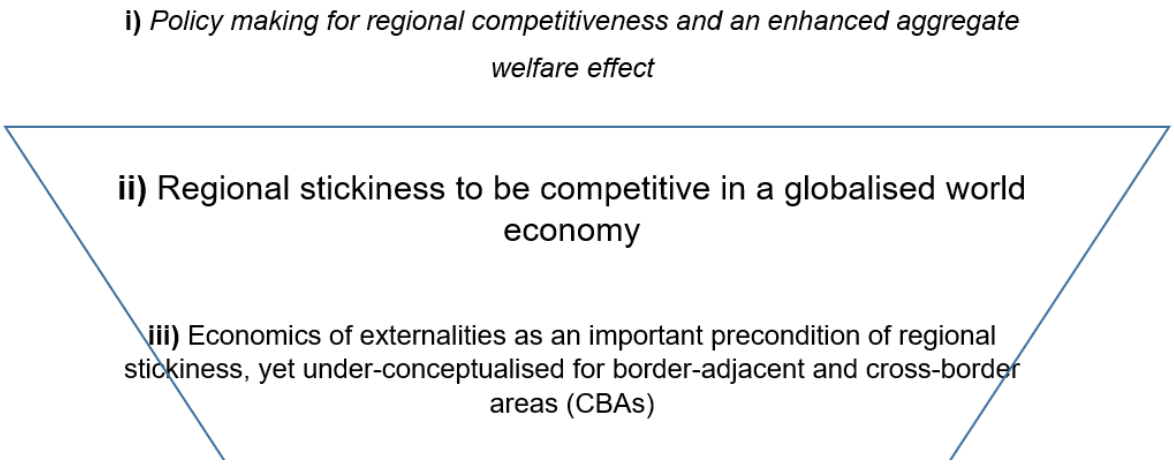
Regionally, this is expressed within the "Agenda van Twente" (Regio Twente 2016), based on the central recommendations for Twente region in the supra-regional "Agenda van Oost" (2017), ministerial researches (Ministerie van Infrastructuur & Milieu 2015) and previously taken policy paths (Ontwikkelingsagenda, Netwerkstad Twente 2013). Locally in Enschede, orienting towards Germany gathered momentum with the election of the current major Onno van Veldhuizen. Particularly, he defines the cooperation with the border adjacent German Münsterland as one of his priorities, creating an impetus to get more hold on the actual status quo and the specificities of linkages in the cross-border area.

Better connectivity with the directly adjacent German (West-)münsterland is desirably to “broad[en the] network of advisers, partners and investors for entrepreneurs beneficial for a [buzzing] ecosystem” (OECD 2013: 122, 212)[7]. Especially given that Twente/Westmünsterland are identified as (one of very few) integration leaders [8]

[3] And of interest, e.g. for the Federal German Ministry of Planning (BBSR 2010), understand inner-German processes and stimulate their development adequately (personal conversation, anonymised).
[4] Furthermore, they should be paid “particular attention”, according to Article 174 of the Lisbon treaty.
[5] Worldwide, the country is among the (national) entrepreneurial systems that are most innovation-driven (compared to factor driven; cf. Florian Stone 2017 – "Analyse Versterking Ecosysteem Kenispark – issued by Kennispark Twente. Electronic version which can be made available).
[6] of the University of Twente and Saxion University of Applied Sciences in Enschede.
[7] [if this network crosses the border in terms of interdependencies].
[8] = Vorreiter der Integration.

across inner-European state-borders (AEBR Association of European Border Regions 2008: 99), co-operation might indeed be a constitutional factor for a competitive regional system and increased aggregate welfare.

2b. ACADEMIC RELEVANCE



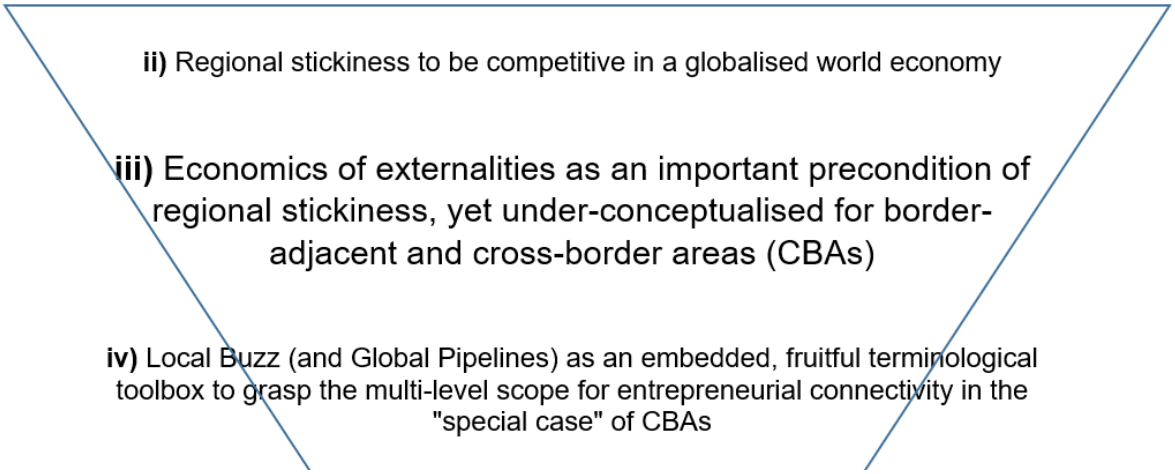
The academic aim *in* this research is to address the conceptual lack in explaining locally anchored, entrepreneurial communication ecology in the "special" case of a border-adjacent area.

Even in “normal", mono-national cases, knowledge about the role of regional scope for stickiness and economic development often remains "insufficient" (Scott & Scorper 2003). This insufficiency is especially problematic for the “special” case of over-proportionally fragmented cross-border areas (Nauwelaers, Maguire & Marsan 2013: 8), with very distinct administrative frameworks and atypical functional patterns. Border-adjacent areas face a twofold problem: Firstly, they lack tailor-made concepts to grasp their local nexus of global networks. Secondly, they are more reliant on these very insights, given assumingly larger margins in connectivity across the state border in its "black boxed" systemic impact.

Yet, unlike in mono-national regions, conceptual sets do not provide a template to increase an unerring approximation of the network's status quo. Instead, they often provide rather puzzling, sometimes contradicting answers on what and how to stimulate network connectivity (cf. ibid: 8-9). Therefore, a tailor-made, comprehensive conceptual approach on networkedness in border-adjacent-areas like the one under study, and/or an empirical application is wanting within the literature on Economics of Externalities and regional development.

The overall research question on the network-scope and -limitations of the border-adjacent Entrepreneurial Ecosystems will subsequently be specified with the terminology of the highly fruitful, yet mono-nationally limited, theoretical framework on network interaction of Bathelt et al. (2004). Directly, overall academic development will thereby profit from the concrete refinement of a theoretical gap. Moreover, the academic community is provided with an extensive case that brings such abstract terms as communication ecology and economics of externalities to concrete empirical terms.

3. THEORY



For the socio-political and academic reasons mentioned, the goal *in* this thesis is to address the conceptual research gap with gathering pieces of knowledge and empirical evidence. This is to contribute to more conceptual understanding of vivid, "buzzing" entrepreneurial ecologies in the cross-border research field of the Dutch region of Twente and its German "hinterland". To establish a conceptual toolbox for this research, the crucial definitions and general concepts bearing upon the issue under study are discussed in the following. Based on the research results and outcome, they will be enriched with empirical "feedback" on some of their assumptions.

3.1. Approximating Local Buzz as a relevant umbrella concept of Economics of Externalities

Bathelt et. al's (2004) conceptualisation on the communication ecology of "Local Buzz" is to be seen within the field of Economics of Externalities, which as such can be seen in the overall field of relational, human-interaction based economics.

Economics of Externalities frame processes which generate externalities and synergies, among multiple linkages of actors from the same (economic and territorial) field. The untraded exchange of externalities, thereby, is assumed to be a crucial feature to understand the mechanisms that generate regional competitiveness for knowledge-driven entrepreneurial networks.

In short, their key concept of externalities can be defined as being largely immaterial or fluid economic values or non-values. Traded in interdependencies beyond the ordinary market mechanisms, externalities do not find their value monetarised in positive/negative financeable equivalents (own elaboration based on Maskell and Malmberg 1999: 167-85; Lawson and Lorenz 1999: 205-17; Krugman 1998a: 161-74).

For economics of externalities, *positive* externalities are of particular interest, that is (immaterial) values without equivalent that can be monetarised. The OECD (2002) defines as "[…] benefits […] not reflected in the prices charged for the goods and services […] being produced". For the regional knowledge economy, it means that actors do profit from goods and mostly services that two other parties exchange, or that they profit much beyond what they purchase. Exemplarily, this might include the mere knowledge about fruitful ways to link to other actors, or about sectoral trends or interesting developments. In a globalising world, it might help to filter relevant providers of resources and facilitate their access of one's own company based on previous regional experiences.

3.1.1. Economics of Externalities among other governance mechanisms

As a first step to approximate the theoretical field, the following section contextualises and elaborates on the specificities of regional Economics of Externalities. It is contrasted to and, yet, interrelated with market mechanisms and governance through mechanisms of hierarchy. To theoretically embed the Economics of Externalities under study, the contrasting foil of other possible governance mechanisms is fruitful, both for inter-firm-processes as they underly each actor's contribution to the regional network, and within this regional scope as such.

The externality-driven, inter-firm connectivity of regional actors is assumed to evolve into an "atmosphere" of positive externalities (Marshall 1927 in Bathelt et al. 2004: 10). As something "in the air" (Ibid.), this connectivity can then be understood as a governance mechanism beyond the dichotomy of inter-firm, hierarchy-led and intra-firm, marked-led transaction mechanisms as explained in the following (cf. Chapter 1, Dicken 2015):

- The governance mechanism *hierarchy* can be defined as a top-down decision process. Examples are public administrations, in which strict hierarchies or legal provisions limit the room for manoeuvre. Characteristic is the vertical organisation of processes.

- *market mechanisms*, in comparison, can be defined to take place in a forum that is "voluntary". Each party can veto it, and (subject to the rules of the marketplace) where “each freely [and rather horizontally] agrees to the terms" (McMillan, 2002: 6). An example can be any transaction, starting from bargaining over vegetables on a market up to the purchase of real estate.

The exchange of positive mostly immaterial, *untraded externalities* is different to both of these mechanisms and of crucial interest for this research.
All three mechanisms, however, are interrelated. Especially the interplay of (local) governments and administrations (hierarchy), firms (market) and universities (arguably, hierarchy and market) in the form of a "triple helix" have received great attention of policy makers (cf. e.g. Etzkowitz & Leydesdorff 1997). The exchange of externalities functions neither within the visible institutional framework of hierarchy nor the rules of procedures of market mechanisms.[9] The exchange follows rules, yet in the broader understanding of socio-behavioural interaction (somewhat graspable with Stam's "framework conditions" of interaction). Therefore, the social "purchase" of a service or piece of knowledge is either below a threshold of visibility, hard to make tangible and, in consequence, hard to trade.

According to Dicken (2015, chapter 1), regions are capable to offer a frame for the complex governance mechanism of Economies of Externalities and untraded interdependencies. His reasoning is based on proximity to facilitate face-to-face contacts in a common framework, which is the necessary "social glue" for business interaction which is mostly not monetarised. This social glue enables (indirect) connectivity to global resources at more reasonable transaction costs (Williamson 1981: 548-577).

[9] It is, however, based on underlying social interdependencies and institutions that the market itself is embedded in.

The regional scale in this regard serves as an important governance mechanism beyond individual firms. Arguably, it helps to overcome the lack of supply for externalities and their implicit demand which is difficult to identify and codify (cf. discussion in Stiglitz & Rosengard 2015).

3.1.1.1. Spatial embeddedness of Economies of Externalities

In short, untraded interdependences and externalities exchanged in localised interfaces are widely considered to have a crucial and growing role for regional success. Regional scale as a necessary framework for regional stickiness, is therefore pivotal in understanding competitiveness in a globalising economy. This might surprise, since time-space shrinking technologies such as digitalisation have made traditional, locational advantages become increasingly "slippery". Indeed, with immaterial resources at their base, innovative business success principally can “happen anywhere“.

However, economically competitive activity still “has to happen somewhere". This somewhere (cf. being “there", cf. polarisation hypothesis Chilla 2016) depends on high connectivity, allowing for competitive advantages (Gertler 1995 in Maskell, Bathelt, Malmberg 2006,). The synergetic character and high complexity of multiple interwoven factors is hard to copy, with intangible and “gaseous” characteristics and (cf. "atmosphere" in the "air", Marshall 1927). Therefore, unlike their mere ingredients, the dense accumulation in innovative regional environments, is a highly sticky and hardly duplicable asset (to go into more detail, cf. Boschma 2005). It can be regarded as an agglomeration force that leads to a concentration in the knowledge economy. This trend also characterises the innovative Dutch ecosystems and therein the border-adjacent region of Twente (Stone 2017).

As mentioned in the academic relevance, despite the great social relevance of regional stickiness, research rarely frames the actual processes that make some regions more successful than others (Asheim 2007). "Why [and how] localisation and territorial specificity should make technological and organisational dynamics better" (Storper 1997: 14) therefore still lacks an unambiguous answer. Yet, concepts like the relatively broad concept of clusters gained great prominence and can be employed for approximation. Most prominently, Porter (2000: 254) defines clusters as "a

geographically proximate group of interconnected companies and associated institutions, embedded (Larsson, S. & A. Malmberg (1999)) in a particular field, linked by commonalities and complementarities. In this perspective, regions are the geographical scale to benefit firms´ economic successes most efficiently[10]. It has been stated by many other actors (cf. ibid.) and is therefore one of the key assumptions underlying this research.

Dicken (2015: 109 ff 'local innovation milieus') and Stam (2015, 'Ecosystems') have provided more refined theoretical angles to conceptualise the general logic of clustering actors and their synergetic interplay[11]. They agree on the fact that successful firms need a proper embedding, most efficiently through a web of interdependencies. Conceptualising with terms lent from both sociology and biology, they indicate the high systemic complexity of externalities. This complexity beyond mere economic exchanges is exactly what contributes to the stickiness of regional ecosystems.

3.1.2. Economics of Externalities and national borders

Understanding this complexity is difficult in any region. In an abnormal, "special" cross-border case, however, it is especially ambitious and, yet, fruitful.

The main reason therefore are the strong remaining border-effects which can be identified even within the most integrated CBA's of the European Single Market. Certainly, the national state is no (and assumingly decreasingly so) "watertight" container for production processes of both products and ideas. However, from a sceptical and non-"hyperglobalist" point of view, national forces are depicted to remain highly significant players in the globalized world economy (cf. Dicken 2015: 109-162).

Indeed, across the state border, the governance mechanisms of Hierarchy and Market do display a strongly disruptive border effect. This is most obvious for the public administration of territorial units in their strict national hierarchy. Exemplarily, although

[10] cf. on the definition of regional scale (Lundvall 1992 in Saublens (2016): 86f)) which indirectly anchors networks in places (cf. Castells "Network society" 1996b, 1997, 1998 in Gregory et al. 2011.
[11] Granovetter (1973) provides a sociological perspective on this interplay, elaborating on regional innovation in need of both "weak ties" to bring in innovative patterns and "strong ties" to effectively establish them.

the municipalities of Enschede and Gronau are direct neighbours, they are embedded into fully different inter-municipal, provincial and national levels.[12]

The governance mechanisms of Hierarchy and Market do display a strong disruption across state borders. Firstly, this is most obvious for the hierarchic public administration of territorial units in their strict national hierarchy. As an illustration, although Enschede and Gronau are directly neighbouring, their municipalities are embedded into fully different inter-municipal, provincial and national levels. Secondly, also in terms of market mechanisms, border effects are identifiable: Labour markets (cf. ESPON 2013a: 51 and ESPON 2013b: 11) and economic exchange of goods are only a fraction of the intra-national level of the same level of proximity (cf. PBL (2015): 33; Van Houtum (1998), comparing its figures 6.9b and 6.10a). Such border effects are depictable even for economic relations between nations that share the same language (as the highly autonomous Flanders and The Netherlands, Van Houtum (1998)). Notwithstanding the similarities across the border, the volume of (traded) interaction within a direct cross-border area (CBA) amounts to only a minuscule fragment the level that would be expectable for a similar area within the same national framework (cf. Van Houtum 1998, paragraphs 6.1. – 6.6.).

Thirdly, the governance mechanism of exchanging externalities is also subject to border effects. Makkonen (2015, in Van den Broek, Eckardt & Benneworth 2017) in this regard depicts them as still hampered across borders. However, the author does not provide an understanding of the underlying mechanisms leading to the border effect beyond its depiction. In sum, various fruitful theoretical angles exist and can serve to elucidate both Economics of Externalities and its underlying networks.

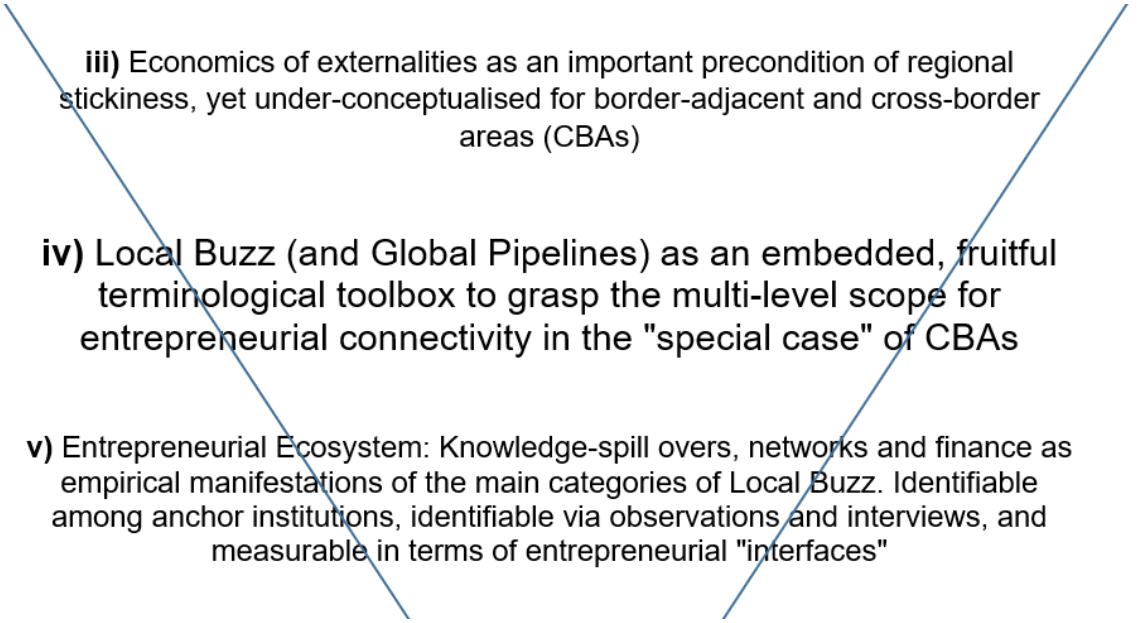
For a cross-border area, there is no coherent framework which provides analytical tools ready to be a) applied and which b) could lead to empirical insights usable for policy-making. For that reason, the following chapter tries to knit such a frame together by identifying the overlaps in relevant contributions. Based on this, a conceptual framework is developed with criteria-led analytical tools that provide a preliminary

[12] Although somewhat common administrative framework at the regional, intermunicipal level of the cross-border “Euregio“ can be identified. In the field of “exclusive competences”, furthermore the common, supra-national level of the European Union can be identified.

vocabulary to explore network-scope and -limitedness of the cross-border area Twente/Westmünsterland.

As a fruitful starting point the following theoretical chapter builds on contributions of authors which help to hypothesise the research field based on largely “normal”, mono-nationally cases. To approximate the a more specific academic research gap, Bathelt et al. (2004) are critically chosen as point of departure, as they provide a comprehensive and relevant "umbrella" of other contributions from the field. Crucially, they provide terminology to conceptualise the interplay of the "local" and international scale. They do so by showing how regional frameworks cannot enhance competitiveness as such, but merely provide the nexus for outward-reaching linkages. At the same time, with setting "local" equal with a merely sub-national scale, the theory faces a terminological gap when explaining interactions that are both, local and international as in the CBA under study. Thereby, it addresses this research's guiding theoretical problem, contributing to filling the academic gap with this empirically-based contribution. Directly, it refines concrete concepts. Indirectly, thereby, it helps to define a more border-specific and border-aware vocabulary in the overall studies on regional economics of externalities.

3.1.2.1. Theoretical Model: Local Buzz and Global Pipelines



As indicated, with elaborating on "Clusters and knowledge: Local Buzz, Global Pipelines and the process of knowledge creation", Bathelt et al. (2004) combine theoretical insights about Economies of Externalities in a coherent scheme, focussing on the interplay of the local and international scope.[13] However, they lack a tailor-made terminology towards CBA, the (theoretical research) problem of which is only understandable against the initial background of this theory´s main assumptions:

Conceptualising the "reflexive [and mutually constitutive] dynamics" (Bathelt et al. 2004, figure 5.3.) through the interplay of linkages of two kinds and geographical scales. They, thereby, provide an analytical dichotomy which is of added value to grasp the cross-border field of this research. Analytically disentangled, the terms of Local Buzz and Global Pipelines conceptualise regional competitiveness as a reflexive interplay of local governance mechanism of global resource access. In that way, Bathelt et al. (2004) offer a terminology to more holistically understand economic and social processes in an (increasingly) globalising world economy.

Especially the nexus of Local Buzz is of interest for the networks of this research: As Bathelt et al. manage to convincingly elucidate, Local Buzz spatially anchors complementary, beyond-regional and possibly Global Pipelines in an indirect way. Tying together the contributions of other authors, Bathelt et al. provide insight on the complex spatial interplay of clusters and knowledge as the “communication ecology” of exchanging untraded interdependencies within a knowledge-based ecosystem of innovative actors (cf. Ibid.: 9).

In a nutshell, Local Buzz thereby, as "a particular important sub-set of economies" (Storper and Venables 2004), refers to the "information and communication ecology, created by face-to-face contacts, co-presence and co-location of people and firms within the same industry and place or region" (cf. ecosystem as used ibid.). A locally buzzing communication ecology links actors in the same regional framework through externality-transporting channels (Storper 1997) that give them (in-)direct access to valuable linkages with a global reach. At relatively lower overall transaction costs, Buzz facilitates access to the multiplicity of available, untraded interdependencies such as

[13] Besides Marshall´s industrial atmosphere and Porter´s clusters, also Coase´s "theory of the firm" could be – arguably - re-interpreted in the light of the bounded externalised Local Buzz and as a governance mechanism.

knowledge spill-overs (Bathelt et al. 2004) at a fair price for manageability and maintenance.

Preventing firms from both (equally fatal) "information poverty" or "information overload" (Goulding 2001). Local Buzz contributes to enhanced agility of firms in a globalised economy. With a critical functionality for firms (cf. Brusco & Pezzini 1990), it can be compared to what Owen-Smith and Powell (2002, in Bathelt et al. 2004) call "local broadcasting" and Grabher (2004) “noise“. The communication ecology of Buzz helps economic actors to keep a fruitful balance between necessary specialisation (within the globalised division of labour) and being "tuned in", directly or indirectly, into the complexity of innovation developments via the Global Pipelines. Crucially thereby, Local Buzz is not a self-sufficient ecology (cf. Lagendijk & Lorentzen 2007) but is to be understood as a "localised capacity" to build, maintain and absorb "global linkages" (cf. Lagendijk and Lorentzen 2007: 457). It is this complementary appeal that contributes to dynamic locational advantages for individual entrepreneurial actors. These reify the collective regional competitiveness which is of crucial interest for policy makers to create a positive aggregate welfare effect in an increasingly complex and global environment.

Comparable to the complex note of “Ecosystems” and “Milieu's”, Local Buzz thereby is no direct result of neither linkages nor nodes (cf. Gregory et al. 2011) but evolves among these. It provides untraded interdependencies among clustered actors, enabling processes of “regional learning“ (cf. Bathelt et al. 2004, Maskell & Malmberg (1999)). Crucially, these mostly originate within knowledge created in the firms themselves (mainly in hierarchy governance, Maskell, Bathelt & Malmberg 2006: 11). In this regard, Buzz is a facilitator of non-market governance mechanisms. It increases the in-firm manageability through "outsourced" access and absorption of "resources" via pipelines that connect to the wider and possibly global knowledge economy. Thereby, in its need of absorption and a manageability of the outsourced access, the influx of immaterial resources through Global Pipelines, thereby, reifies the functioning of a buzzing communication ecology.

The following model illustrates this constitutive character of Global Pipelines for the Local Buzz among actors in the same regional framework to embed and facilitate face-to-face contacts. Remembering the special CBA-field of this research, it is crucial to reflect on the assumption of the local and regional level as merely mono-national:

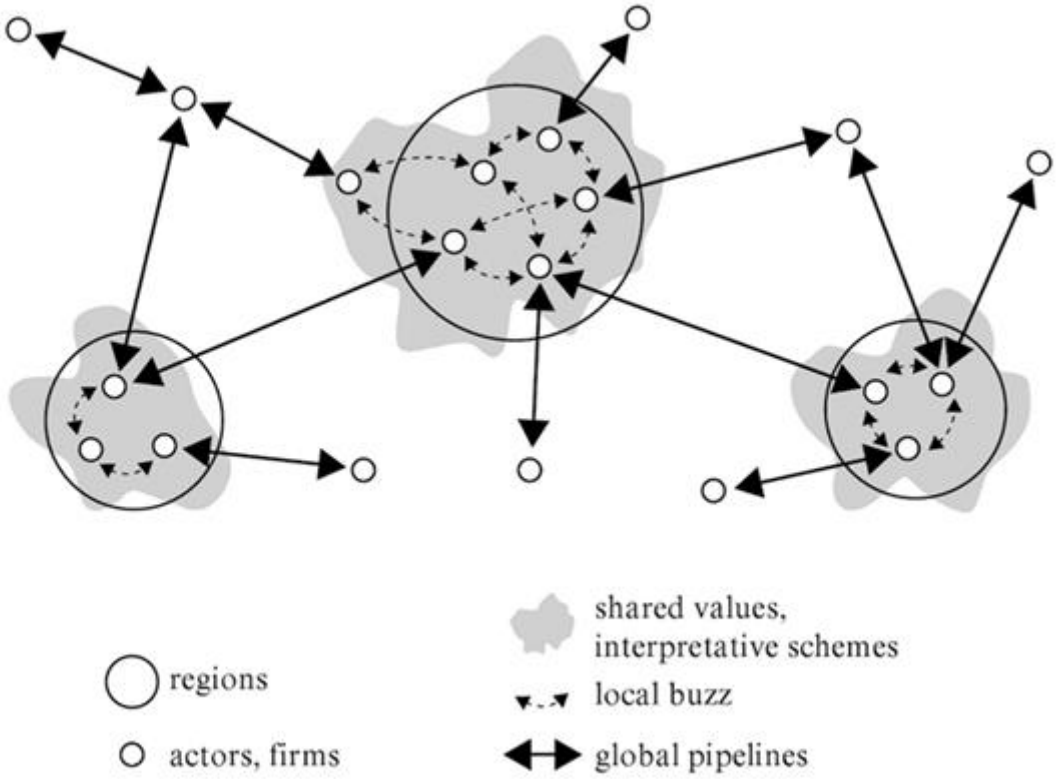


Figure 1: The reflexive dynamics in Local Buzz and Global Pipelines (cf. Figure 1 in Bathelt et al. 2004 and Bathelt & Schuldt, 2008: 43).

The model shows, how eventually for individual "actors, firms", Local Buzz provides a communication ecology that facilitates a non-marketed, localised governance mechanism, beyond market-led governance and hierarchy mechanisms (Bathelt et al. 2002: 3-5). In the words of Maskell et al. (2006: 11) and comparably Owen-Smith and Powell (2004), Buzz contributes to connectivity which efficiently increases the regional division of labour and provides higher competitiveness. In this regard, Local Buzz can be identified as a cornerstone to explain economic agility of regionally clustered actors in a globalised economy.

4a. GUIDING THEORETICAL PROBLEM

Identifying the employable cornerstones within the more abstract notion of Economics of Externalities, the research question of network-scope and -limitations is sophisticated. To address the lack of CBA-specificity and mono-national assumptions, the analytical toolbox of Bathelt et al.'s terminology (2004) is adopted and simultaneously challenged in the "special" research field.

Some shortcomings can immediately be anticipated when trying to apply it to a cross-border area like the one under study: As crucial for the “social glue” which ties actors together to a buzzing communication environment, Bathelt et al. (2004) employ both, "common framework" and "face-to-face contacts". In administratively disrupted cross-border areas, however and different to their (implicit) assumptions, common framework and face-to-face contacts do not seem to evolve neither simultaneously nor in a necessarily coinciding manner. In the light of a dividing, yet open and nearby state border, local entrepreneurial face-to-face contacts might appear despite of differing domestic frameworks.[14]

The following adaptation, therefore, reflects this crucial first aspect through the visualisation of a state demarcation running through the two-dimensionally modelled field:

[14] Illustrating the need for a tailor-made application, Harald Bathelt is aware that his concept is not to be seen universal, but highly dependent on the respective context (personal communication 2017, see appendix 6, pp. 190 ff).

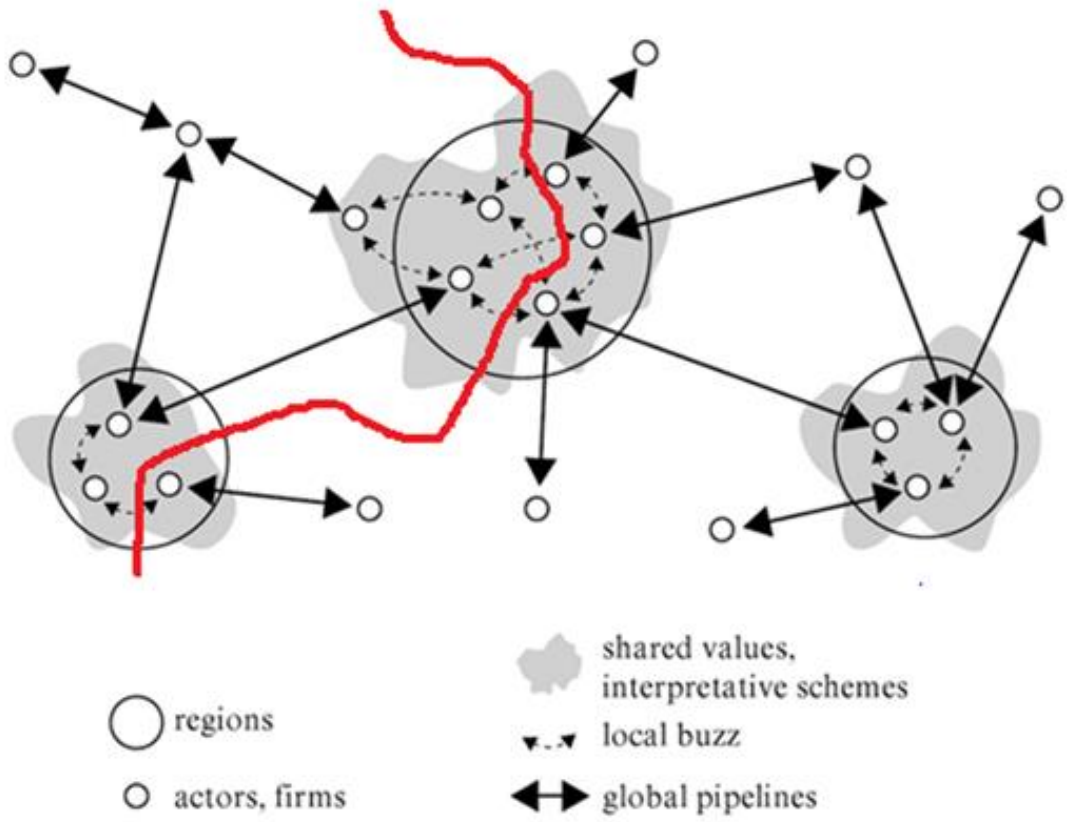


Figure 2: Local Buzz and Global Pipelines in a cross-border-area, with the dimension of state border included.

In the way presented, the border splits regional “shared values” and “interpretative schemes”. Following this first approximation+, some expectable buzz is rendered outside of the domestic demarcation (preventing it to serve as a nexus of incoming pipelines). Supposedly, the communication ecology of Local Buzz, therefore, underlies changes when confronted with a state border.

Throughout this thesis, the model will be used as a subsequently evolving coherent illustration of the research results.

4b. GUIDING RESEARCH HYPOTHESES

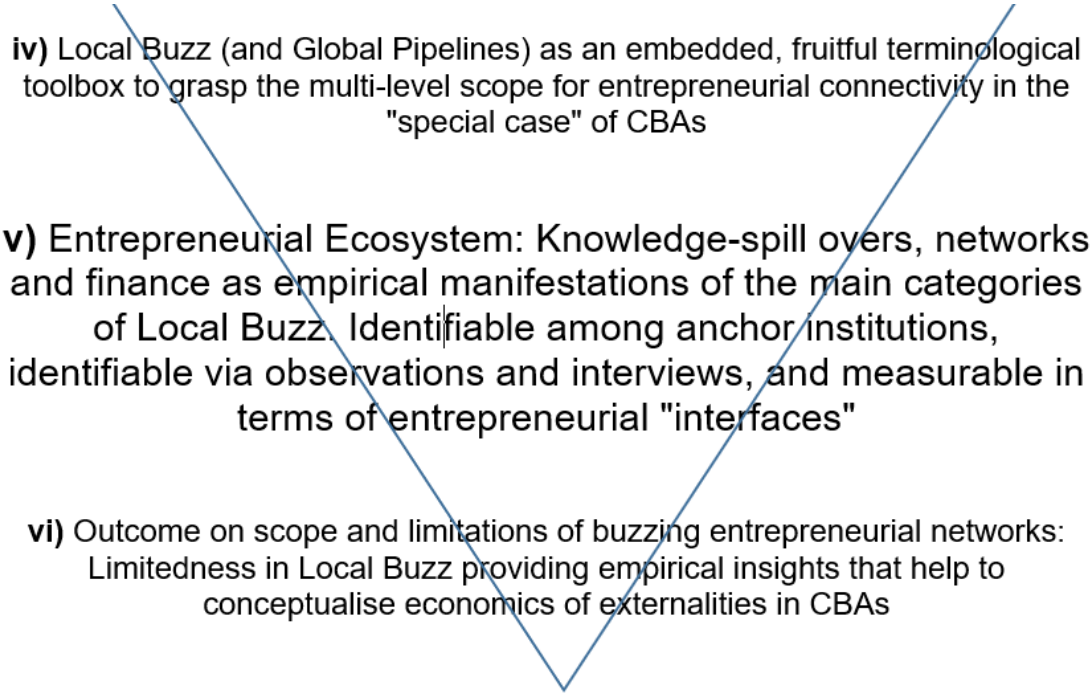
As first analytical handhold within the alteration of the model, two possible alterations of the characteristics of the regional network scope and -limitations are sketched. They refine the original research question with approximating likely characteristics of the entrepreneurial linkages in the field and its systemic connectivity. Grounded on the notion of "glocalisation" (Encyclopaedia Britannica 2018), two evolving, possible interplays of the global and regional scale in a cross-border-area can help to gain a sustained analytical footing:

a) Hypothesis "Glocal Buzz". Interaction with the neighbouring CBA is part of the local communication ecology at low transaction costs but does at the same time bridge actors from different domestic frameworks.
b) Hypothesis "Glocal Pipeline". An Interaction with the neighbouring CBA is a Pipeline at close physical proximity. This includes 1) being situated in a differing framework and 2) having manifold complementarities.

The two adaptations in place constitute two (preliminary) poles of an assumed continuum. The research will then contribute to place the status quo between these poles. It does so with its manifested, criteria-based threefold categories of knowledge spill-overs, linkages and interdependences network-scope and –limitations, each of them, thereby, includes sub-questions that are specified in the conceptual framework, extrapolated and analysed along the research categories. Answers can be expected on the status quo of regional connectivity and derived thereof on underlying mechanisms, the role of the state border and its moderating effect on the stickiness of physical proximity for CBA entrepreneurial networks, Together, these results help to map and characterise the area's network-scope and limitations.

In this way, the guiding theoretical problem of possible Glocal Buzz and Pipelines anchors the research with concrete terminology in the mostly immaterial and complex interplay within the CBA's Economics of Externalities. Beyond, observations in the "special", yet eluding border case can be insightful in unveiling networking mechanisms also in "normal", mono-national regions.

5. CONCEPTUAL FRAMEWORK



As mentioned, to analyse the scope and limitedness of an actual, regional network, the application of Bathelt et al's terminology (2004) is a fruitful point of departure. It provides a tripartite, categorical template to identify and differentiate connectivity in the research field. Thereby, it includes the preliminary answers that existing literature can indicate to underpin the research categories and thereby approximate the research question.

However, given their abstract nature, the theoretical notions generated in that way still need to be specified for empirical research and has to be brought "down to earth" in many regards. The following chapter therefore shows, how different concepts can be brought together to build a framework that addresses pressing issue of ill-defined connectivity in the region under study. Mainly, the abstract (G)local Buzz is transformed into a research object by translating its categories into Stam's (2015) more applicable "systemic conditions" within networks that create a regional "Entrepreneurial Ecosystem" (ibid.). Following the second step and to gain a methodological grasp of this still rather abstract concept, "Entrepreneurial Ecosystem" will then be objectified. This is done through the forms of its entrepreneurial activities and the anchor-institutions and -events along which this activity is manifest and researchable (see chapter "research object").

5.1. Research categories

Asking for Glocal Buzz and Glocal Pipelines, it is firstly crucial to distinguish the underlying original concepts of Local Buzz and Global Pipelines with their tripartite categories. Following up on Bathelt et al. (2004: 48 – 49 ff), this distinction helps to find an answer to where to place the research area's networkedness on the range between Glocal Buzz and Glocal Pipelines (cf. hypotheses p. 28). To do so, sub-questions are addressed to the respective network-scope and limitedness of:

1) externalities which signify

2) linkages[15] and

3) their underlying interdependencies

These empirically interrelated dimensions are analytically separated in the following table. In sum and based on Bathelt et al. (2004), it establishes categories of 1) ‘what’ that is externalised, 2) ‘how’ this is done, while the 3) and 'why’ it is done in the first place. In that way, the following table comparatively shows the tripartite characteristics of Local Buzz and Global Pipelines as the two analytically crucial forms of linkages in a competitive environment in need of externalities.

[15] In this context to be best understood as personalised communication channels.

Local Buzz	**Global Pipelines**[17]
Nexus directly anchored in space (cf. ibid.: 1)[16].	Indirectly anchored in space via Local Buzz.
1) Externalities signifying linkages in the field circulated in communication (formal and) informal linkages such as typically recommendations, judgement, but also informal gossiping, chatting Knowledge with special quality - Listener specific, tailor-made and absorbable knowledge/information such as feedback, can include collaborative learning Needs external connections, it cannot be self-sufficient concerning the latest (scientific) knowledge (ibid.: 6).	**1) Externalities** signifying linkages in the field circulated in communication predominantly formal linkages such as typically Knowledge with special quality - Clearly depicted (latest) knowledge/information on demand Needs complementarity and absorbability of a Buzz (ibid.: 19) for business practices, that generates knowledge-application and spill-over

[16] From a theoretical perspective, that can be seen in the light of a potentially "Empty Buzz" (Bathelt et al. 2002: 24) due to actors continually dealing with external pipelines (for which most transnational linkages qualify, as has been shown).

[17] The term pipeline might be miss-leading in so far, as the exchange and flow of interdependencies is not constant and rather temporary in contrast to, e.g., oil pipelines.

2) Linkages Although with a multilateral dimension, Buzz-based linkages are bilaterally identifiable based on the following criteria:	**2) Linkages** The multilateral dimension of Global Pipelines is indirect via the nexus of Local Buzz. Yet, such linkages are identifiable in their bilateral form based on the following criteria:
2.1. They diffuse untraded interdependencies, with mostly tacit knowledge spill-overs, without transaction costs with a rather broad goal and permanent orientation (ibid.: 12). Also, a digital solidification of this will be deliberately recognized, e.g. in digital business networks like “Xing” and “Linkedin”.	2.1. They diffuse traded interdependencies in a marketed form, e.g. knowledge spill-overs in the form of patents, spill-overs of strategic intelligence, with high transaction costs and a rather specific goal with a complementary appeal.
2.2. Common Framework[18] to socially glue and embed linkages Relatively low transaction costs due to low thresholds for interpersonal communication in a common interpretive scheme and a calculable risk in a common institutional framework and interpretive scheme.	2.2. No common (very limited) framework to embed linkages Relatively high transaction costs and a certain amount of incalculable uncertainty, due to lacking common (interpretative) framework, maintenance necessary.

[18] Although important for the wider “framework” of Buzz and Pipelines, cultural theories (OECD 2013: 57, Box 1.7.) such as Hofstede´s (1984) cultural dimensions with a focus on differences in (language) business and working culture (Hahn (2014) and Trippl (2013) for Saar-Lohr-Lux and Centrope) are left out of.

Maintenance occurs automatic through seemingly coincidences of “talking with” or “talking with and about” other actors (conceptualised based on key assumptions in Bathelt et al. 2002: 11, 13; Cf. Van Houtum 1998). 2.3. Complementarities might be direct, but are more often indirect, involving knowledge on other, possibly more distant and yet complementary actors.	2.3. Complementarities of actors are direct.
3) Interdependences that create mutual benefit, yet mutual losses when being broken. Analytically employed to identify areas where linkages are likely to evolve Depictable in financial interrelations of investors and investees initially through Personal face-to-face contacts as the social “glue” that enables mutual trust, but also (spatially exclusive) observation of daily practices, routines (ibid.: 8). Interdependences in the research on Buzz include the distinguishable framework of (merely) bilateral business interaction. However, and beyond, it also includes more vaguely graspable, collective notions.	**3) Interdependences** that create mutual benefit, yet mutual losses in case of breaking it. Analytically employed to identify areas where linkages are likely to evolve Depictable in relatively higher transaction costs and formally codified contacts, without the possibility to observe daily practices. Interdependences in the research on Pipelines are rather explicit, as they are limited to the more distinguishable framework of bilateral business interaction.

- These vague interdependences include sharing the same daily urban system and thus diffusely being dependent on each other in the one situation or the other to investing in each other and providing references for each other that help to boost both actors´ images and competitiveness. Some parts of this wide spectre are quantified in the following, extended "interface model" (chapter 5.3. ff).	

Figure 3: Research categories on Local Buzz and Global Pipelines (based on Bathelt et al. 2004).

In the way described, the disentangled three angles on externalities, linkages and interdependences help to differentiate between (G)local Buzz and (G)local Pipelines and thereby to qualify the networkedness extrapolated from the field.

5.2. Research Object: Systemic factors of the Entrepreneurial Ecosystem

As stated, Local Buzz (and Global Pipelines) are terms from a comprehensive, yet abstract framework to grasp economics of externalities. Even in their more digestible form of three major categories, this poses difficulties for empirical research to directly apply them on the field.

This research, therefore, delimits the entrepreneurial ecosystem as a concrete research object to apply Bathelt's categories to. Concretely, the wider field of emerging start-up entrepreneurs is chosen as a relevant “group of [regionally] interconnected companies and associated institutions in a particular field“ (cf. definition of cluster). Initially, this is for the assumed crucial contribution of these networks to the research area’s aggregate welfare. Analytically, it is as well for the relatively easy access and more digestible inner structure (cf. Greiner 1972) of young firms. In that way, they serve as a good exemplification of both, potentially global, digital markets and a down-to-earth, locally buzzing scale.

Namely and according to the Global Start-up Ecosystem Report Genome (2017: 24), "early-stage start-ups […] are almost completely dependent on the resource [access] and skills present in their city" and more specifically the city´s "Entrepreneurial Ecosystem" (Stam 2015). The (inter-)dependence of start-ups on externalities in the ecosystem makes their broader interplay an interesting and concrete, localisable field to do empirical research on the more abstract geography of innovation (ibid: 1760-1766). This research takes careful notice of this fact and, in its analysis of regional network-scope and limitations, therefore includes actors:

1) with a present in starting-up (cf. "Eurokite" Bahruz Mammadov; University of Twente "Hardstart", Saxion University of Applied Science´s "Nesst" inititative, etc.)

2) recent past in starting up ("P17" Benjamin Bloch, well established digital entrepreneurs) or a

3) feasible engagement with start-ups (Ingo Hoff with the Gründerstein award, regional development agencies, financial services etc., more details to be found in appendix A7).

Stam describes the Entrepreneurial Ecosystem as "a set of interdependent actors and actors coordinated in such a way that they enable productive entrepreneurship within a particular territory" (Stam & Spiegel 2017). Entrepreneurial activity, according to Baumol (1993: 30), is understood as the process by which individuals create opportunities for innovative business models, manifest in the "output" for the regional aggregate welfare effect. The research addresses "crucial" (Stam 2015) systemic conditions that are based on eco-systemic framework conditions.

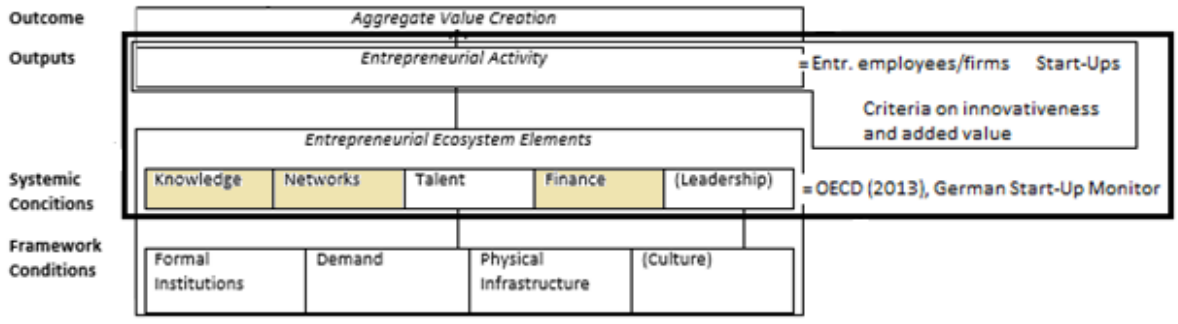


Figure 4: The Entrepreneurial Ecosystem (centre) and its solidifications, including start-ups (on the model's right sight, based on Stam 2015).

The inherent elements will be explained in the following. First and foremost, these following (shadowed) elements are central:

- Knowledge spill-overs

- Networks

- Finance

The usability of these factors is *firstly* their evidence-based and practically oriented origin, similar to suggestions by Kollmann (2016), the Global Entrepreneurship Monitor (e.g. 2017) and the OECD (2013, 2016). *Secondly*, as indicated before, it is their usability as concrete adaptation of the Buzz-building categories, brought together in the following way:

Local Buzz and Global Pipelines (based on Bathelt et al. 2004) as theoretical categories	Systemic factor of the Entrepreneurial Ecosystem (cf. Stam 2015) as empirical objects for the theoretical categories.
1) Externalities	~Knowledge spill-overs
2) Linkages	~Networks (of intervening opportunities between actors)
3) Interdependences	~Finance (investor-investee relationship)

Figure 5: Tripartite theoretical categories and their empirical manifestations.

Brought together, these systemic factors provide a practical tool from the field of entrepreneurial studies for analysing an exemplary web of a buzzing communication ecology.[19] Together, the criteria enumerated are claimed to constitute a sufficiently saturating insight to the tripartite categories of the research field's connectivity.

[19] Tying them conceptually together is what Bathelt calls a link to the study of innovative regional capacity and the more practically oriented Entrepreneurial Studies.

5.2.1. Criteria-led objectification of the actors in the Entrepreneurial Ecosystem

In a criteria-led way, therefore, the actors in the border adjacent area and its "hinterland" can be identified. This template helps to grasp the dots in the network and provides the necessary pre-condition to further analyse any kind of connectivity between the Ecosystem's actors:

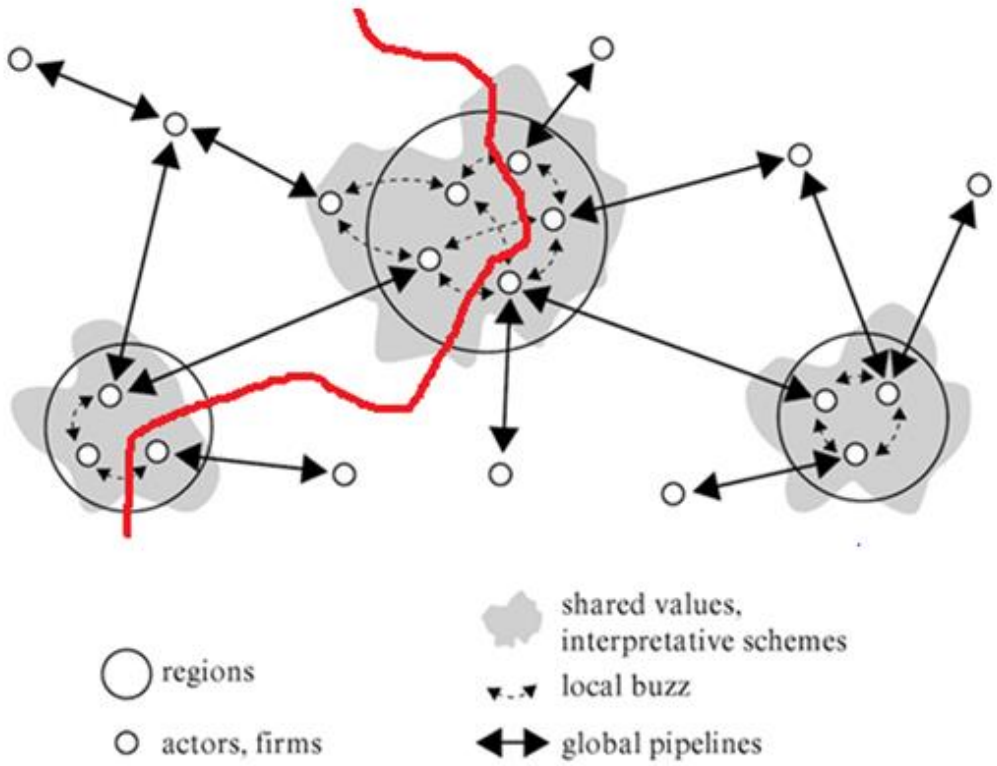


Figure 6: Local Buzz in a CBA.

Within this Entrepreneurial Ecosystem(s) under study, the actors that underlie the empirical research insights can be framed as entrepreneurial: They strive for innovative business model that go far beyond both financial subsistence and the regional scale. More clearly, most of the actors are more or less direct (inter-mediator and facilitating) interaction with start-ups, for which the two earlier meant aspects are paramount (cf. Stichting Maatschappij en Onderneming 2017). The (more established) Entrepreneurial Ecosystem becomes manifestly anchored in its interaction with start-up companies. It is important to distinguish this regionally relevant Entrepreneurial Ecosystem from a merely subsistence, non-innovative ecosystem. The following broad

definition of start-ups and thereby their embedding ecosystems is insightful for this reason (cf. Startup Monitor, Kollmann et al. 2016):

1. A start-up is younger than ten years and fulfils at least one of the two following:
   a) a start-up features (highly) innovative technologies and/or
   b) business models and has/strives for significant employee and/or sales growth.

   More specifically, in the words of Steve Blank (Start-up Genome LLC 2017: 143), a start-up is an "organisation in search for a repeatable and scalable business model"[20]. Start-ups in that way are unlike to small and medium businesses, which primarily aim to secure the mere livelihood or "subsistence growth" (cf. Stam 2015, among others). "Mere" young, subsistence enterprises, therefore, can be distinct from "gazelle" start-ups with a positive net-effect for the regional economy, as "growing young ventures that are built to create wealth[21]. In this way, gazelle start-ups can function as a basic sector with export-driven stimuli to the regional economy and its aggregate welfare effect (cf. Braun & Schulz 2012: 103).

   Gazelle start-ups are not only highly dependent on their (local) ecosystem; they also constitute a rather accessible object for research on non-firm externalities. Mostly, they are small firms dominated by a visibly leader or group of leaders. Analytically therefore, the inner-firm governance mechanisms are, limited to rather few intervening opportunities.[22] For this reason, avoiding non-transparent intra-firm processes in the research object, the analysis can be expected to avoid intervening, independent variables.

The criteria enumerated are brought together in the following comprehensive scheme, serving to identify start-ups (and their environment) that fit into the definition of "gazelle". It provides a more detailed and specific account of what Figure 4 summarised as "entrepreneurial activity":

[20] Cf. Start-up Monitor Deutschland 2016 KPMG counts 1244 start-ups along the ESM 2016 definitions.
[21] Gazelle is derived from "Gazelle companies" (Aronsoson 2004, in ESM: 15).
[22] In accordance with the literature, this notion was also given as a crucial advantage of starters by the more experienced judges at the eventFunding Nemo event Hardstart UT.

Gazelle start-ups 4] - 1] added value	*Mere subsistence start-ups*[23] *0] added value*	*Other newly founded firms*
Built to create wealth, not subsistence	*(often implicitly meant)*	*(not required)*
Younger than 10 years	*Young company (Mostly reaching from 5-10 years)*	*(not required)*
(highly) innovative technologies and or business models	*(highly) innovative technologies and or business models*	*(not required)*
Strive for significant growth	*(depending on definition)*	*(not required)*

More specifically in the case of university spin-offs can be distinguished[24]:			
4] Patent based	3] Research based	2] Ecosystem based	1] Alumni based

Figure 7: Starting-up companies as a central element for the Entrepreneurial Ecosystem and the regional aggregate welfare effect.

For this research, only actors of the kind displayed in the left half are of relevance. They can be expected to both, contribute to regional welfare, and to help extrapolate the wider Entrepreneurial Ecosystem.

[23] For Germany, only 16% of all new enterprises offer such an innovativeness. For "only" about four percent, this is a global innovation, while all of them are count as foundations.

[24] For an even more elaborated and detailed analytical grasp of the regional economy, this definition of starting-up university spin-offs can be further sub-categorised. As the model shows, this can be done with distinguishing the categories of university connectivity, starting from being(just)
"1] alumni based", more narrowly within that the
"2] ecosystem based", more narrowly within that and with a higher likelihood of regional significance the "3] research based" and within this legally codified and, therefore,
"4] patent based", with an especially high likeliness of having gazelle status for the region (cf. Paul Bijeveld (2014) for the regional development illustration "Twenteindex").
The added value of this is in having a combined, immediate grasp on both the actor's proximity to regional anchor institutions, and their likeliness to provide externality spill overs. For this research, it was included in intermediary products, but did not prove significant enough to justify even higher conceptual complexity in the final text body.

5.2.1.1. Anchor institutions

"Anchor institutions" are key to reasonably map and access the ecosystem around and among the different kinds of gazelle start-ups. They manifest the abstract communication ecology of an Entrepreneurial Ecosystem in time and space, serving as a node for interdependence-based linkages that lead to knowledge overspills. Concretely, Universities[25], but also locally championing companies (cf. Van den Broek, Eckardt & Benneworth 2017: 11) can play a significant role to anchor knowledge creation and exploitation. Being both “locally active and relatively immobile", Universities and firms create networks respective Entrepreneurial Ecosystems[26] and analytically indicate the presence of these.

Such multipliers, in general or in the border-specific context, can contribute to a more vibrant ecosystem (OECD 2013: 122-135). It does so by manifesting the three-partite categories of:

- the availability of knowledge externalities,

- linkages e.g. through innovation awards,

- interdependencies when building a nexus of investors and investees

In that way, anchors can serve as the empirical starting point, solidifying the Entrepreneurial Ecosystem under study (cf. formal institutions and infrastructure Stam (2015)[27][28]. In the research field thereby, the two Universities in Enschede, as well as the major software firms in the Westmuensterland, fulfil these criteria adequately. They are central in an interplay of actors that shows the crucial features of possible multipliers of e.g. the German Start-up Monitor (Kollman et al. 2016: 79):[29] Specifically for cross-border knowledge spill-overs, the OECD´s (2013) paper identifies multipliers

[25] Strategic role in urban regeneration and local economic growth, universities have adopted it as a third-stream activity or mission.
[26] See for a metaphorical comparison to mushrooms and their underlying networks Prof. Dr Arnoud Lagendijk inaugural speech, Radboud University).
[27] In contrast e.g. to Van Houtum (1998), the Entrepreneurial Ecosystem in that way is more specifically approached through some of its framework conditions and localised anchor institutions in time and space.
[28] In contrast e.g. to Van Houtum (1998), the Entrepreneurial Ecosystem in that way is more specifically approached through some of its framework conditions and localised anchor institutions in time and space.
[29] 105 in total, that were sent questionnaires for the underlying survey, thus being sufficient to make claims on a national ecosystem.

which are largely similar in definition, sector and function. For this research, these are to be understood as bridges between the framework- and systemic conditions as displayed in Figure 4[30]:

General regional multipliers in a mono-national context (Kollman et al. 2016)	Cross-border multipliers (OECD 2013)
Venture Capital Investors, Business Angels	~ Financing tools
Technology Centres, Accelerators, Incubators	~ Technology Park and Incubators, Cross-border Science Parks,
Business-plan competitions	~ Innovation awards
National- and regional Entrepreneurship Networks (+ personal networks)	~ Clusters or network initiatives
Co-Working Spaces	Joint university or higher education programs

Figure 8: Ecosystemic multipliers in a mono-national and cross-border context.

Through the application of these sets on the Entrepreneurial Ecosystem in the CBA, the relevance of the actors under study can be estimated based on concrete manifestations. This is crucial to counterbalance the more subjective factors of networking, also during the research process itself.

5.2.1.1. Qualifying the quantitative network scope

To include relevant events in this research, it is important to elaborate on the qualitative *what* of multipliers and possibly anchor institutions, but also on the quantitative *how much* they contribute to the ecosystem. The schematic distinction of Maskell, Bathelt et al.'s "Temporary Buzz" (2006: 12, table 1) on solidifications of Local Buzz is thereby helpful. Accordingly, closest to what can be coined a Local Buzz is an (even if temporary) environment allowing for encounters of a relatively broad goal and a permanent time dimension (cf. Gertler 1995).The criteria for especially the collective

[30] Compare also with the interesting, more qualitative research on the German-Polish border by Osiecka (2006).

observations, therefore, are the distinction of actors having *specific* or rather *broad* goals when attending an event, with an either *temporary* or rather *permanent* time dimension, aware for the type of linkages as either horizontal or vertical:

Specific Goal: Characterizes the majority of actors having a pre-defined, mostly codified, prominent goal on their agenda.

Broad Goal: Characterizes the majority of actors having a networking goal, defined as the indefinite but experience-based hope and aim, that attending the event will benefit them.

Specific and broad goals are *Identifiable* in the official set up of the event, the naturalness and prominence of networking among the actors; and with small-talks led additionally to observations and references made during the interviews.

Temporary (time dimension): The event takes place only once or a few times, actors see each other infrequently.

Permanent (time dimension): The event takes place repeatedly and is widely recognized, actors see each other frequently.

The temporary or permanent time dimension is *measurable* through indicator on cohesion and mutual connectivity appears low, loud laughter e.g. is rather absent and the potential for coincidences respectively the danger of ex-communication as its second side of the coin appears low. Identifiable in the small-talks, re-affirmed by observations and references made during later interviews.

“Horizontal Linkages”: Actors in the same field, no truly back- or forward integration possible, but common challenges, markets, etc. Exclusively private actors.

“Vertical Linkages”: Back- and forward integration possible, also investor/investee [5] relationship included, private and public actors.

The kind of linkages are *measurable* in guest lists and the way that presenters address their audience (“dear entrepreneurs”, “since we are all investors”, etc.).

Combining these dimensions in the following comprehensive way is helpful to distinguish the full-fledged “hotspot” (upper left corner) manifestation of a communication ecology from rather “coldspots” (lower right corner), and possibly empty or unsustainable shells:

	broad goal	**specific goal**
permanent	Most evident materialization of multilateral Local Buzz, especially when it involves **horizontal-** and **vertical linkages** (as a possible third dimension to this model).	
temporary		Linkages most likely with complementary characteristics of bilateral (Global) Pipelines

Figure 9: Importance of ecosystemic multipliers (Maskell & Bathelt 2006).

The research is saturated when multiple solidifications are included in the evidence gathered, allowing a multi-angle estimation of the research object Local Buzz. This is necessary to efficiently limit the scope of this research and still give an answer to the research question in a saturating way that covers especially the more Buzz-like events and thereby the more institutional backbone of the regional economy (cf. Grabher 2002, illustrations of outcomes in appendix A7a).

5.3. Bringing research categories, object and criteria together

The three main conceptual angles of this research constitute entrepreneurial interfaces in both their more abstract (Bathelt et al. 2004) and more concrete dimension (Stam 2005) along start-ups in their locally anchored environment. To analyse the "depth" of these interfaces in this research field, Van Houtum's (1998) "interface model" is employed[31]. Used as a measuring tape, it has a spectrum from mere "contacts" [practically no interdependence] to "[business] success". To establish greater comparability, this thesis employs cardinal numbers from [1] to [6].[32]

– [1] Contact – [2] Attraction – [3] Interaction - [4] Transaction – [5] Relation – [6] Success –

Figure 10: Gradual categories of the interface model, on a scale from [1] to [6] (based on Van Houtum 1998).

For this research, the model is extended to more collective notions which extend the (predominantly) bilateral entrepreneurial interface:

- In the pre-contact phase, the interface model is extended to the linkage of "knowing that" a (public or private) actor exists.

- In the post-success phase of entrepreneurial interfaces, the model is extended to linkages that possibly serve as a wider reference for the business-partners reputation towards others. In this most advanced business relationship, interdependence (e.g. regarding reputation) is extended to the wider Buzz, coined as an "external interdependence" which involves a third actor. In contrast to a merely bilateral interdependence of two actors "talking with" one another, "external interdependence" indicates a collective level in which actors "talk about" one another and about other bilateral linkages.[33] These two additions aim to bridge the mutually constituting bilateral scale of linkages and the collective scale of Local Buzz:

[0] Knowing that – [1] Contact – [2] Attraction – [3] Interaction – [4] Transaction – [5] Relation – [6] Success (-full interdependence) – **[7] External Interdependence**

Figure 11: Extended interface model, used as a measuring tape for linkages in the field [0] – [7].

[31] His "interface model" is developed for (micro-economic) linkages in the Belgian/Dutch border (Euro-)region.
[32] Usage without the cardinal number indicates the use of the word in a more common understanding (for "contact, " e.g. very wide).
[33] Additionally, their centrality (and cohesion) is remarked (cf. linkages in Gregory et al. 2011) and quantified regarding "intervening opportunities" (cf. this term in Gregory et al. 2015) between actors.

The extended interface model allows for a limited quantification of the depth of linkages in terms of their (very abstract and diffuse [0] to concrete and monetarised [7]) interdependence and therefore of regional connectivity in the cross-border area.

5.3.1. Deriving limiting “Network Borderedness“

As the other side of the coin, the network connectivity can indicate gaps respectively limitations that exist among actors regarding knowledge, networks and interdependences. Limitedness thereby can have different forms:

- Legal restriction (cf. Chilla 2016 on the ”hard geography” of laws)
- Essentialist borders (based on pre-dispositions such as national origin) and
- Gradual limitedness (different extent of a phenomenon). It can include a "threshold of indifference" across the border. Briefly, this stresses the passivity and lack of incentives across borders, in contrast to an active and essentialist refusal to do so (Van der Velde & Van Houtum 2004).

For this research as one angle of the coin, gradual limitedness is the research focus, being of greatest social relevance in the field under study. In this thesis, limitedness stresses the dimension of borders as socially constructed and evolving in reflexive dynamics. In a CBA, it can be hypothesised that administrative demarcations disrupt the functional entrepreneurial connectivity. To give these dynamics more terminological visibility and to distinguish from the static connotations of e.g. finiteness, *"limitedness"* in the CBA will be coined with the specially invented term of dynamic “*borderedness*“, thereby, does not point at a border as such but at the "margins" that are identified, below a hypothetical maximum of perfect connectivity. Eventually, the term of “network-borderedness“, exemplified in connectivity-margins, coins the conceptual, non-normative opposition to the scope of “network-connectivity”.

In order to explain the finiteness of networks across borders, high transaction costs appear as a logical explanation and will be employed to approximate also the dynamically evolving borderedness in the research area. Less intuitively, the research is also sensitive for possible opportunity costs (James M. Buchanan 2008: "Opportunity cost") that might also contribute to explain the absence of linkages.

5.3. Additional overview on the conceptual framework

The cornerstones of objectified research categories in a regionally embedded Entrepreneurial Ecosystem come together in the following model that contextualises the earlier Figure 4 (and provides a more visual angle to what has already been described). Read clockwise, it illustrates how the theory-based conceptual model, regional demarcation and methodology work together in a complex research project. Firstly, they help to identify the network scope, to then secondly deduce evidence on the borderedness in the area under study:

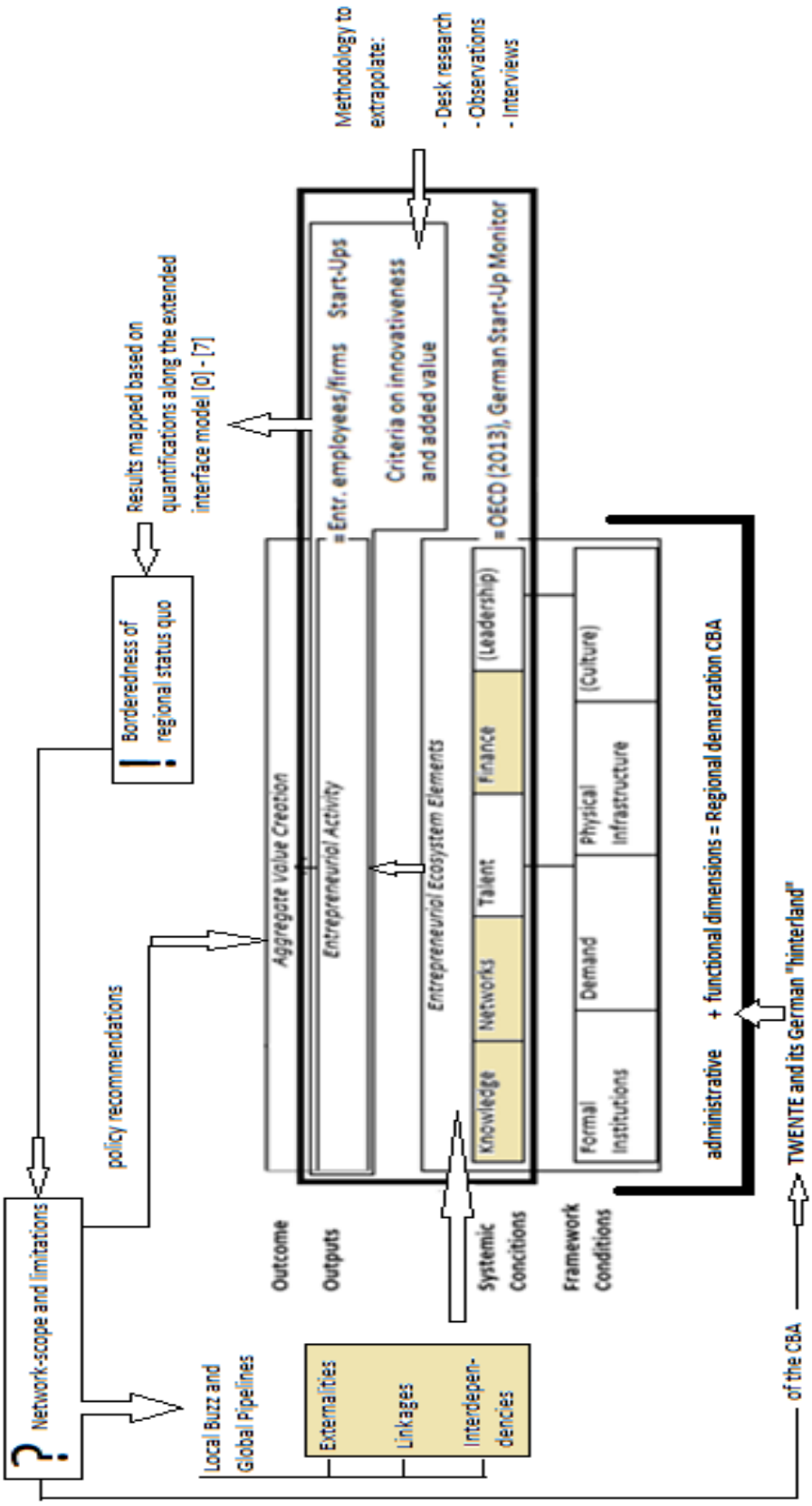


Figure 12: Overview conceptual model. The research question on network-scope and limitations, grasped through the theory of Local Buzz and Global Pipelines with threefold categories, manifest as systemic conditions in a complex Entrepreneurial Ecosystem that can be extrapolated with the methodology as described.

In more detail, the model presents the research as based on the theory on Economies of Externalities, employing a concrete adaptation with the start-up ecosystem that is inseparably embedded in the framework of regional demarcation. With help of the research methodology [to be explained] of participant observation and semi-structured interviews applied on that research field, empirical evidence is carefully derived with the analytical tool of the adapted entrepreneurial interface model and the axes of Maskel et al.'s (2006) "Temporary Buzz". Finally, the outcomes are framed into answers on the scope and borderedness of the regional networks` status quo. This answer to the research question, in its implications, translates into practical recommendations for regional policy makers.[34]

[34] It should be mentioned with humbleness, that -naturally- regional policy makers might be limited by manifold restrictions. The "sympathetic critique" on Entrepreneurial Ecosystems and regional policies by Stam & Bosma (2015) provides more details.

6. RESEARCH FIELD

The following approximates the relevant geographical demarcation of the actual research field, the Dutch Twente and its German “hinterland”. As illustrated in this chapter´s outcome, it thereby provides a regional scale, within the guiding theoretical reference-map of Bathelt´s (G)local Buzz and with reference to Stams's framework conditions (of infrastructure and labour demand). This regional scale is different from pre-existing transnational frameworks, such as the inter-municipal "Euregio" (cf. for their regional demarcation Euregio (2016)). The distinction is chosen, given that the Euregio largely depends on the political will of administrative entities to participate. Functionality, as crucial for a vivid ecosystem, might greatly vary compared to that political will, especially regarding the more or less border-adjacent places within the administrated areas.

In order to spare technical details, it is possible to take a short cut to the chapter´s summary on page 59 and proceed with the answers to this thesis's tripartite sub-questions. Even more underlying details can be found in the pieces on the German knowledge economy, in the additional appendix.

6.1. Regional demarcation

Given to the academic shortcomings mentioned, this research necessitated to employ “mono-national” theoretical models of regional demarcation. In an approximation process, the abstraction of Local Buzz, via local anchors and entrepreneurial actors, is embedded in concrete physical space. The following differentiates the research field in terms of a) functional connectivity that enables face-to-face contacts, and b) administrative authorities that define framework structures for actors (cf. Chilla 2016: 57, 118). In that way, with formal institutions and physical infrastructures, the regional demarcation of the Entrepreneurial Ecosystem accumulates what Stam coins the “framework conditions”.[35] Based on these conditions, the “systemic factors” that manifest Local Buzz, are regionally embedded.

[35] Methodologically inspired by Nauwelaers, Maguire & Marsan (2013).

6.1.1. Functional regional demarcation cf. Demand [in the labour market] and physical infrastructure in Stam (2015)

A functional conception can be based on a daily urban system, as an attempt to reconstruct and analytical grasp the CBA (Chilla 2016: 20).[36] Roughly, the functionality is based on the "law of gravitation" (Gregory 2011), with greater interactions among larger entities and physical proximity. With connectivity of linkages as the main category of operationalisation (Chilla 2016: 26), the CBA is defined according to the indicator of predominantly labour-market linkages, indicating the likely territorial scale of proximity to stimulate face-to-face contacts (cf. Stam 2015). In that way, the area‘s function to, as a region, "structure […] life in space and time in a concrete manner" (Van Houtum 1998, 2.4.6.) can be reconstructed.

The research field of Twente in The Netherlands is an inter-municipal administrative “regio”, and a region in functional terms (cf. Atzema, Hospers, Van Oort, Renooy, Teisman, Tordoirl. 2017) .[37] Its (regional) capital and largest city Enschede contains about one-fourth of the total regional population, major facilities and the anchor institutions of higher education and research. It is, therefore, the originator to draw the functional regional compass from. With a radius of 100 kilometres beeline from Enschede, a maximal regional “Entrepreneurial Ecosystem” with an assumingly “shared pool of resources" evolves[38] (cf. Start-up Genome 2017: 24; Nauwelaers et al. (2013: 7). As crucially evolves for this research, more than half of this “ecosystem” locates in Germany.[39]

[36] It aims to show a current snapshot of processes of social construction (Werlen 2007, in Chilla 2016, p. 20) rather than claiming an unbreakable and fixed territorial composition. However, a positivist approach is pursued (cf. Chilla 2016, p.24, Approaches to Human Geography (2006, p. 163-167 overview)), pre-supposing a (limited) objectionability of space.

[37] The geographical level of the inter-municipal "regio" Twente is to see as one of nine regions within the two provinces of the Dutch east “Landsdeel Oost“. These are most of all functionally based on the observable commuting of the people[37] within the communicating area (cf. KvO 2016, p. 7ff), measured based on the regional markets for labour, services and social services, shopping, education, recreative activities and others.

[38] The slight bias of the circle to the south represents the better transportation network which effectively brings these regions closer at large).

[39] Also in the cross-border regard, however, Enschede is an adequate centre of analysis, with the largest amount of German inhabitants, labour and guests, both in absolute and relative terms (I&O Research (2015a) p. 34, “Bestedingen vanuit en naar Duitsland, 2015 (miljoen Euro)“ I&O Research (2015a), in Overijssel (2016, p.34) “In Duitsland wonende werknemers in loondienst in de grensstreek […] aantal“, Cross-Borders (2012) in Overijssel (2016 p.22).

Figure 13: The potential scope of the Twente Entrepreneurial Ecosystem, within 100 km from Enschede, wide definition (based on Google Maps, 2017).

Estimating the functionality of this maximal pool of potentially shared resources is especially hard given to the very border-adjacency. [40] The CBA under study is supra-local, but in contrast to the mono-national “normality“, sub-national to two states (cf. Chilla 2016: 23). This particularity makes data-driven research on small-scale very difficult (cf. Helmcke 2016 in Chilla 2016: 16).[41] Therefore, for the CBA in and around Twente and its German "hinterland", data-based evidence to underpin the functional demarcation is hindered. With comparable sub-national data only available on the all European NUTS 3 level, understanding of the region across the national border is limited to a great level of generality.

[40] In some regards and for certain actors, this can also be defined much more narrowly, reaching to “20 minutes driving distance“ (personal talk at Wageningen Fund the Future).

[41] To illustrate the problem, statistical granulation in Chilla (2016: 159, figure 55) is insightful, showing how much “data-driven evidence“ can differ dependent on the perimetrical demarcation[41]. With insufficient granulation, “reconstructing“ the region from a functional point of view is hampered (European categories are often filled in only on a Nuts 2 level which is too broad to understand the real linkages) and increases transaction costs, for producing relevant data on one´s own.

Directly accessible data has been sparsely generated only for its (northwards) German "hinterland" around Nordhorn, identifying a morphological area across the border similar to a Functional Urban Area (e.g. higher education, shopping, ESPON 2007). In the CBA under study, therefore, Enschede (and other parts of Twente) have an agglomerative gravitational force to parts of the German Westmuensterland.[42]

For Enschede´s (Netherlands) direct neighbour and the most well-connected German city of Gronau and its surrounding area, an analysis of cross-border interconnectedness is not available. The likely extent of connectivity between Enschede, and its German "hinterland" is, therefore, indirectly derived from Gronau´s labour-market connectivity in Germany (WTG Gronau 2017, based on data of the chamber of commerce (IHK)). As stated, this approach accumulatively elucidates Stam's (2015) framework conditions, namely the "physical infrastructure" (to commute) and "demand" (for labour).

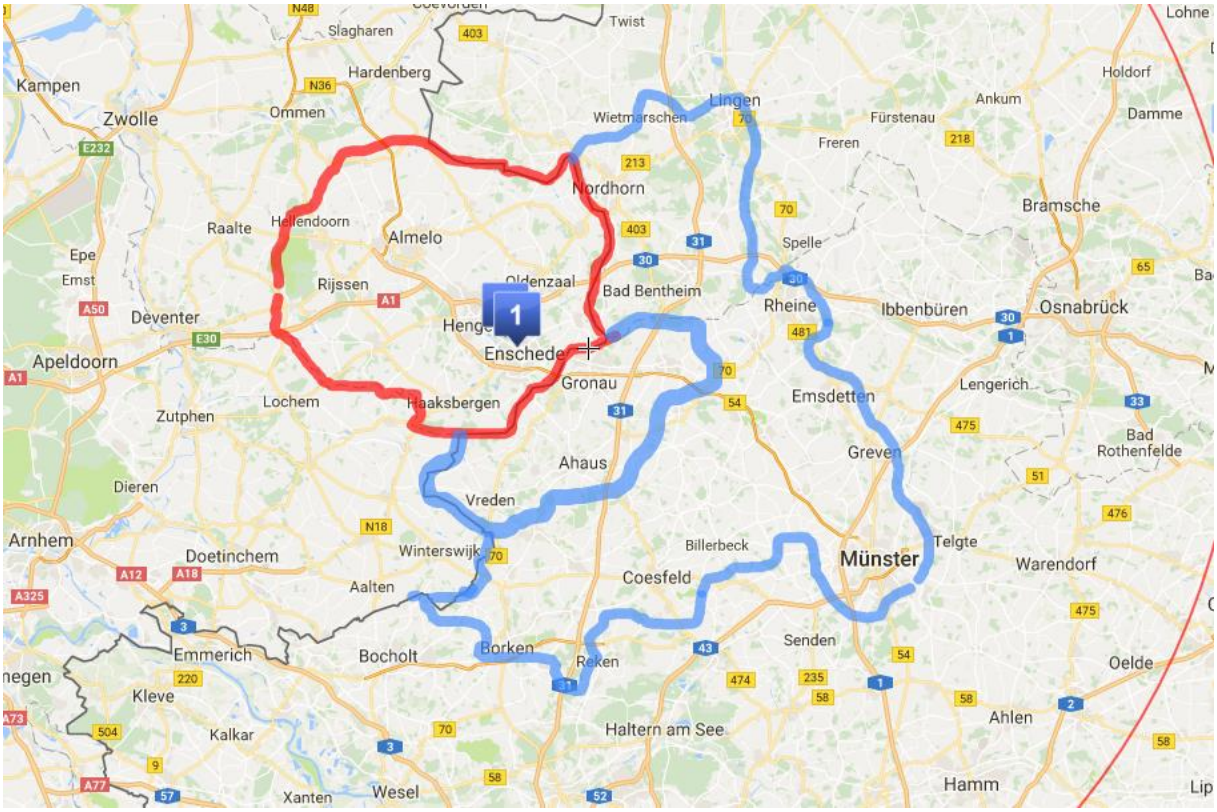


Figure 14: "Snapshot", showing the likely functional scope of face-to-face contacts within the Enschede-based [1] regional Entrepreneurial Ecosystem in the German "hinterland" with centrally Gronau (based on IHK 2016).

[42] However, limitingly in this case, it has neither "a clear metropolitan dimension" (ESPON 2007, 1.4.3. in Metroborder p. 76) nor "immediate metropolitan sphere" (IMeG, BBSR 2013).

Based on this, especially the cities of Ahaus, Vreden, Schöppingen and Nordhorn and their neighbours are the wider hypothetical hinterland [43] of Enschede, added by the city of Münster due to its gravitational appeal as a regional centre (cf. WTG Gronau 2017). Likely, their connectivity to Enschede is higher than that of the merely Functional Urban Area with Nordhorn. It might have a joint metropolitan function with a likely Local Buzz. Despite this derivation, the following, deeper-going empirical sources of observations and interviews are sensitive to differing, subjective or commonly shared definitions of the region. Reasons for that are limits in understanding the area from a transnational functional point of view (cf. Ipsen 2006: 31 in Chilla 2016: 29f).[44] Concluding the functional regional demarcation, an indicative German “hinterland“ of the Entrepreneurial Ecosystem of Enschede (Twente) evolves, allowing for face-to-face contacts and glued by that for “a shared pool of common resource [access]“.

6.1.2. Administrative regional demarcation (cf. formal institutions Stam (2015))

In contrast to the more fluid functional dimension, the administrative demarcation of the research area is legally pre-defined. Connected to hierarchical governance mechanisms that impact the functional territorial set-up, they considerably shape realities on the ground. Not least for the practicability of the research and due to data-availability, the administrative demarcation has to be considered. To narrow down the hypothetical and researchable “hinterland” therefore, relevant administrative units are identified, as they legally structure the area and possibly moderate the functioning of the area in important terms. The different levels of Dutch and German territorial administration are, therefore, comprehensively mapped in the following table:

[43] "Hypothetical hinterland" in this case expresses the doubt, that a perceived, potential German "hinterland" of the Twente-daily urban system is not necessarily that functionally interwoven as the term suggests.

[44] As an additional difficulty should not be forgotten, that effective connectivity in the region also largely depends on the social group and mode of transport chosen for analysis. As an example, most students in Enschede possess a subscription for public transportation that either covers all of the Netherlands or all of the German federal state of North Rhine-Westphalia (see source 2 in appendix A4, p. 186 ff for an in-depth discussion). The implications for Local Buzz then substantially differ from the more gradual connectivity by car.

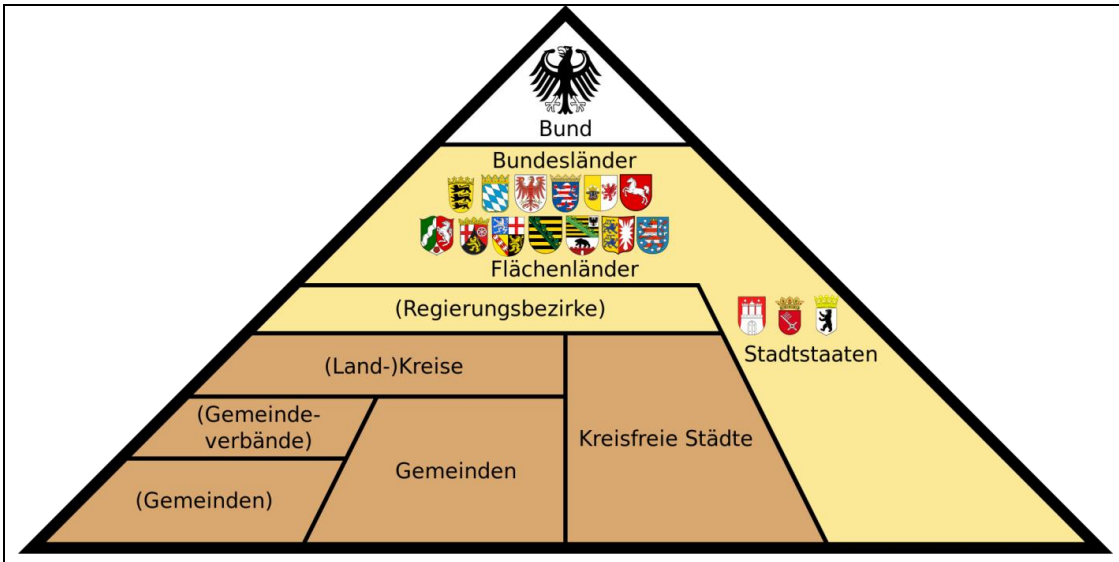


Figure 15. Illustration on the administrative structure in Germany (based on “Verwaltungsgliederung Deutschlands“, overview as displayed on the illustration of Wikpedia.org, accessed in 2017).

Administrative level	The Netherlands (17,2 mio)	Germany (82,2 mio)
National level	Rijk (1 unit)	Bund (1 unit) This unit comprises, however, the federal states of Bundeslaender with independent competences, e.g. on education) Federal State Nordrhein Westfalen, = North Rhine-Westphalia "NRW" (being one of 16 within Germany)
Sub-national level	Provincie Overijssel (1/12 within the Netherlands)	Landschaftsverband Westfalen, 1/2 in NRW

		[Regierungsbezirk Münster, 1/5 within NRW]
Level of inter-municipal collaboration	Regio Twente (variable number of units)	Gemeinde(zweck)verband (variable number of units) Kreis Borken (1/8 within the Regierungsbezirk Münster)
Local municipal level	Gemeente Enschede (1/14 within the Regio)	(Kreisfreie) Stadt / Gemeinde (1/17 within the Kreis Borken)

Figure 16: Comparison of administrative tiers in Germany / Netherlands.

In sum and as will be derived in the following chapter, the regional demarcation under study can be summarized in the following way:

National level: The Netherlands	National level: Germany
	Federal state level: North Rhine-Westphalia
Provincial level: Overijssel	(Landschaftsverband) Westfalen (Regierungsbezirk level): Münster
(Inter-municipal level): Twente (reasonable scale for face-to-face contacts)	Kreis level: Borken (northern part formerly: Kreis Ahaus and reasonable scale for face-to-face contacts).
Municipal level: Enschede	
	Municipal level

Figure 17: Administrative levels in The Netherlands and Germany compared (own elaboration based on Engelhardt 2015).

Sharpest among nation-states, also borders between territorial units on a domestic level and the finiteness of data hinders a functional understanding of regional development across administrative tiers. In Germany, the domestic finiteness is most visible in data on higher education, which is the competence of the federal states.

Given little detailed data across this units, the analysis of the knowledge economy in the “German hinterland”, therefore, is practically restricted to the borders of the federal state. For practical reasons, therefore, only the federal state of Nordrhein-Westfalen - = North Rhine-Westphalia "NRW" is addressed. The hinterland in the federal state of Lower Saxony and its scientific institutions in the area for practical reasons are no object to this research. This is despite e.g. Nordhorn is part of the Functional Urban Area, and although relevant scientific institutions are located within the “common resource pool “, within much less of effective commuting distance from Enschede.[45]
Within the German federal state of North Rhine-Westphalia A), the unit of Regierungsbezirk Münster B) is chosen as one of the federal-states five sub-administrations. It is an important authority for data on regional innovativeness and entrepreneurship in the region. This Regierungsbezirk Münster with Münster as the regional centre is then further demarcated to one of its eight subdivisions (= Kreise), namely the Kreis Borken marked with C). The research area marked is chosen as the most horizontally comparable scale to form a comprehensive CBA with Twente (cf. Engelhardt 2015: 13). Within this, especially its northern part is subject of the qualitative research part. Its distinctiveness is based on its history as a formerly separate Kreis (Ahaus) and remaining current institutions of the same territorial scope (e.g. Kreishandwerkerschaft, for the craftsmen on the lower German administrative tier of the Kreis). Largely, therefore, the research area on a geographically reasonable scale for likely face-to-face contacts, equals the former Kreis Ahaus. It is the northern part of the Kreis Borken, often called Westmünsterland, within the Regierungsbezirk Muenster within the federal state of North Rhine-Westphalia. In this way, a small extend of the functional German “hinterland“ of Enschede is off research unit, for the simple reason of practicability and most of all data availability and comparability. Available data appeared mostly structured along administrative demarcations.[46] Accumulatively, these help to elucidate Stam’s (2015) framework conditions of “formal institutions” and limitedly “culture”.

[45] With the IT-campus Lingen as part of the University Osnabrück with about 2500 students, as apart of the University of Applied Sciences in Osnabrück[45] cf. cross-border MONT-Mapping (2009).
[46] See for an estimation of traded interdependencies (cf. Chilla 2016: 57, 118). “Uitvoer van goederen Twente“ in Rabobank (2008: 40).

Figure 18: The potential regional Entrepreneurial Ecosystem based on the volume of local commuting and the administrative demarcation of German states (A), Regierungsbezirke (B) and Kreise (C) which explained the practicability-based qualitative research area Gronau-Ahaus-Vreden (mark the functional interwoven yet administratively distinguished area right next to c)'.

6.2. Summary regional demarcation

To recapture, the relevant CBA in the wider sense lies within a 100 km radius around Enschede. In the narrow sense, grasping Local Buzz more accurately and within the practical limitations of this research, it is the morphologically and functionally more likely connected (urban) Twente and the (Northern-)Kreis Borken in the Regierungsbezirk Münster. Across the Dutch-German border in that way, a cross-border area (CBA) evolves which consists of the city of Enschede in the Twente region and the proximate German region of the Westmünsterland, with in the narrower sense the northern Kreis Borken. The two sub-national regions together constitute a CBA of about 800,000 inhabitants, out of which approx. 600,000 in Twente (157,000 in Enschede alone). For the Westmünsterland, given the absence of a German regional centre as close as the Dutch Enschede, some degree of regional "gravitation" is expectable. Purposely, the CBA is coined vaguely as an "area", since the regional dimension of the CBA remains under question.

The regional demarcation additionally can be underpinned only by the indirectly applicable data-base for Gronau in Germany. The discussion on the accuracy of the regional demarcation is, therefore, not definite and subject to further reflections along the evolving empirical evidence. The second necessary pre-condition to proceed towards the research objectives is therefore only met preliminary. As a first adaptation of the reference-model Local Buzz for Border regions, in consequence, a (preliminary) question mark is added, to both the regional scale and the very notion of a functional region that it constitutes:

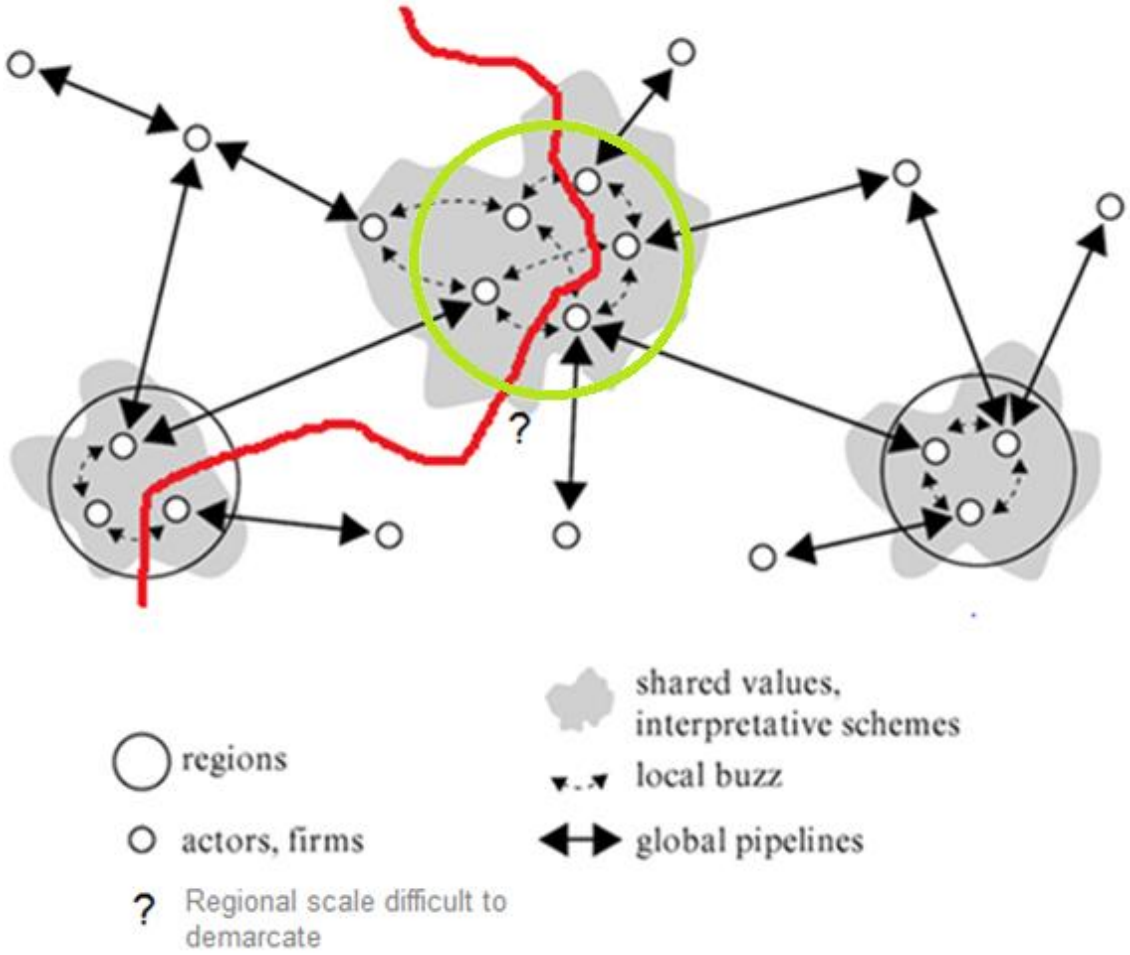


Figure 19: Local Buzz in a questionable regional demarcation.

7. RESEARCH METHODOLOGY

The research object has already been approximated with the regional demarcation to embed the theoretically deduced categories and the operationalised manifestations of them. The findings – as the outcome of this conceptual operationalisation – are then presented with the multiangled and visually distinguished accumulation of desk research, observations and interviews.

The following elaborates on the methods of how empirical evidence is extrapolated. This allows for results that can be mapped in a goal matrix. In that way, an overview is provided that helps to firstly digest and secondly analyse with regard to the previously defined conceptual framework and thirdly answer the research question.

7.1. Theoretical background of the research method

Importantly, this research on a CBA does not methodologically strive to point at border-related abnormalities in the field under study. In contrast, the research ambition is to give an unbiased picture of the “mere” scope and limitations of networks in a cross-border-area. In this way, the underlying research goes beyond the highly marked explicitly of deliberate cross-border initiatives, aiming to embed them in the comprehensive and holistic picture of "normal", mono-national entrepreneurial interfaces.

The research is heavily empirical and explicitly builds on processes of day-to-day knowledge (cf. spill-overs, references etc.). Given all the (necessary) fluidity and dynamic of the field, it is crucial to provide a rigid and systematic methodological framework. Although a full replicability in the exact same manner appears difficult given the high personal involvement and social capital in this research, the methodological rigidity at least provides a general recipe of data collection and interpretation in similar cases.

Ontologically, the data collection follows a constructivist approach which epistemologically (and in line with interpretivist strands) collects subjective pieces of evidence that are not to be seen as absolute truth. Pieces of evidence therefore do not represent a positivist "reality" but are rather a "representation of life experiences" (Landsheer & Boeije 2010: 58) of the people in the field and interviewees, cross-checked and triangulated (O'Donoghue, T., Punch K. 2003: 78 to avoid biases of the type described in Becker (1958)) with one another and quantitative data. This appears

important given the necessarily subjective dimension of regional experience that cannot fully be foreseen. However, deliberate moments of reflection are scheduled to cross-check the evolving evidences and their theoretical meaningfulness, with participants and other stakeholders of the research. This is to ensure the quality both of the arguments and the methods used to form them (cf. Landsheer & Boeije 2010: 15).

The explorative and descriptive research proceeds in several steps to find criteria-based empirical evidence in a reflexive process of doing fieldwork. To keep track of the observations that lead to the three different sources (the underlying data of which can be found in the appendices), intermediary academic products guarantee the necessary intersubjective traceability of the arguments and can be made available at every step. Several field notes serve to continuously redefine and develop the practical application of the categories and criteria of this research (cf. Silverman 2013: 32-39; cf. Bruno Latour 1996: 369-381).

In that way, the rather rapid data-collection is meant to be followed by "slower processes of substantiation and extension" (Martin and Sunley, 2001, 148-161), to extrapolate the meaningfulness respective essence in repeated phases of coding and restructuring. This is of special relevance in the "abnormal" cross-border case, to avoid intuition-biased answers.

7.2. Sources of empirical evidence

The conclusions made on the entrepreneurial network-scope and -limitedness are based on the three sources of desk research, observations and in-depth interviews.

These methodological tools necessarily remain a mere approximation to the field and –given the limited resources of this thesis- cannot make a claim to fully grasp all aspects involved. Alternative or further going methods, such as focus-group interviews, appear as not initially feasible given the limited resources of this project. Certainly, at its early and explorative research stage, focus groups do furthermore not fit the research goal, as they require an early pre-assumed selection of participants from a yet incomprehensive field.

The methodology chosen appears sufficiently feasible and yet multi-angled enough to enable unbiased contact with that very field from a mostly qualitative angle, enriched with quantifiable data (Landsheer & Boeije 2010: 11). Each method employed sheds a (different) light on the main research categories of externalities, linkages and interdependences as well as their practical manifestation. Despite each angle being limited, the interplay of three different sources can claim to grasp the research objects sufficiently precisely. The way that each methodological angle [M] addresses a dimension of the main categories of network-scope and limitations can be summarised in the following graph. It displays the methodology with its objects, marking the biggest matches in the darkest colours (e.g. the intersection of Interviews - Interdependences):

	Externalities: Knowledge spill overs	**Linkages**: Networks of intervening opportunities	**Interdependences**: Finance (investor-investee relationship)
[M] **Desk research**			
[M] **Observations**			
[M] **Interviews**			

Figure 20: Match of research method and research object.

In short, based on anchor institutions being identified primarily in the desk research, the research *firstly* identifies relevant networks within the research area. These are *secondly* refined during the observations and finally evaluated and *thirdly* contextualised in interviews with key actors. In that way, the research re-constructs network-scope and limitations based on the knowledge externalities, linkages and interdependences which it extrapolates.

1) Desk research[47]

The desk research includes the analysis of actors in the field and possible interview partners. It is based on the criteria to reach saturation of empirical evidence within the demarcated regional field. Results of this research step are mostly implicit in this research, as they provide the selection criteria for observations and interviews.

As a data condensation of existing quantitative material about the CBA (cf. Regin & Amoroso 2011), it is the starting point for the field-based methods of gathering empirical evidence and guarantees the relevance of both observations and interviews.

[47] A special case of desk research was the regional demarcation, which, however, necessitated both a specific methodology and an early position in this thesis.

To keep the effort of desk research more manageable and effective, I crucially build on (the necessarily personal environment of) my internship organisation Kennispunt Twente. This serves as both a "Research Buzz", thus as a governance mechanism to access, contextualize and filter information and resources necessary for the complex research process.[48]

Certainly, this includes an institutionally biased angle on the field. It is yet preferable over a more random bias of pre-maturely establishing early research criteria in a fully unknown regional environment. The inter-municipal finance for "Kennispunt" furthermore clearly underpins the task of this institution to contribute to overall aggregate welfare, which is the ultimate goal also *with* this research.

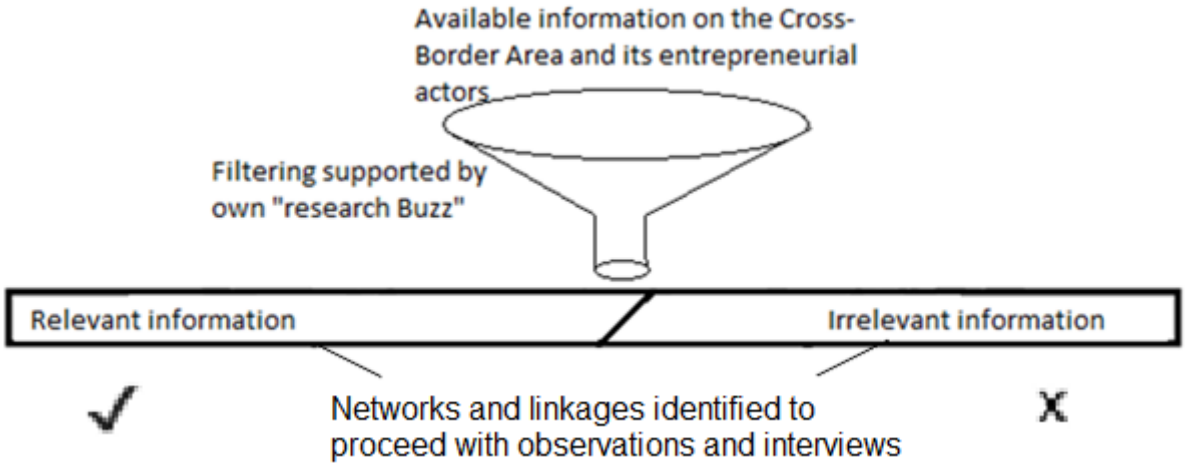


Figure 21: Summary of the process of desk research.

2) Observation of events

Participant observations at events in the field are inspired by action research, as an implicit non-actor in the very research field (cf. Adelman 1993 on Lewin). Notes are taken non-judgementally, which is to guarantee an effective repeated usage of the field-notes for subsequent coding and prevent implicit coding right away. Based on the assumption, that somewhat informal processes are crucial to understanding the

[48] As an additional filter, an awareness for the built environment will be employed to orientate during the research process. Exemplarily for the filter-function of the build environment are the company buildings, which indicate the size, importance of the firm and "displays" its physically proximate neighbours, instead of time consuming research on homepages that advertise the products, cf. own research Buzz. All intermediary Buzz products can be made available if requested.

network under study, my[49] role as a as the researcher would be ideally invisible. As the ‘fly on the wall’, I "describe what happens [regarding transnational knowledge overspills]" (cf. Landsheer & Boeije 2010). through showing the actants involved at what occasions. This includes also "indirect observations" through triangulated and underpinned referencing during the events/interviews allowed an integration into the research model.

I try to stimulate it through not taking notes or photos very visibly, and by not displaying my research interest during small-talks that will be used to understand the field better (ibid.). This is especially relevant for those with a certain risk of “excommunication“ (of outsiders). In that way, the action research is essential not to falsify data with my presence and first to document a thickly described and authentic picture. Notes are taken very carefully in order to allow outsiders an image of these events off public accessibility (Hamersley & Atkinson 2007). Especially at the of the observations, little ad-hoc interviews enrich the context of the observed.

Criteria on the connectivity across the state border in field observations firstly allow grasping the character of linkages. Technically, this is facilitated with a focus on the frequency of the meetings, their familiarity (along informal or formal address) and other social dynamics. The actors themselves are contextualised according to available information such as the catalogue of participants, but also (in Germany) based on the regional registration number of their cars. This number indicates the "Kreis-"origin of the car´s owner and therefore helps to get a quick overview on the "German hinterland´s" more accurate origin (cf. criteria on "borderedness" in the following goal matrix.

Providing overarching information on the cross-border characteristics, the functional network-scope and the possible network-limitedness, language use (possibly Dutch, German and/or English) is carefully noticed. Together, these templates allow identifying empirical evidence with relevance for a cross-border Buzz, carefully noticing their possible lack and/or counter-evidences.

[49] Given the very personal agency in this process, a more impersonal way of describing the method would only hide the inherent subjective dimension.

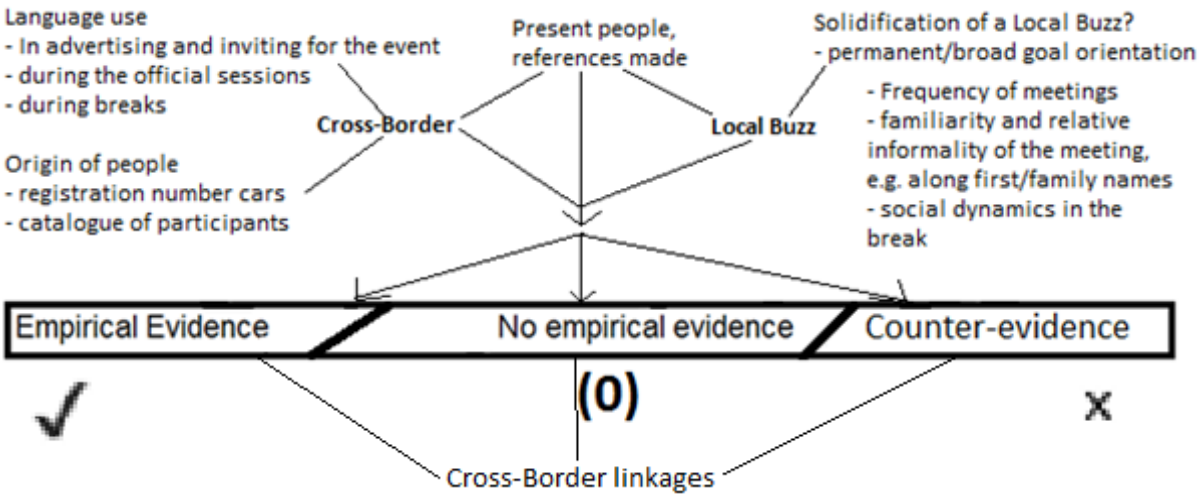


Figure 22: Summary of the observation of events. The left side displays a two-folded manifestation of (national) origin, the right side is the down-to-earth manifestation of categories from the model on pp. 30 ff and its operationalisation.

3) Semi-structured, in-depth interviews

They are semi-structured (interview guideline in the appendix A3, with a fixed set of narrow questions and a few more open ones. For the latter, a specification is sought in a non-directive way that allows for a true elaboration of the interviewee rather than for checking of pre-assumptions of the interviewer (cf. May 2002, Qu, S. Q., & Dumay, J. 2011: 238-264.).

Content-wise, this allows it to gain greater analytical depth,[50] and methodologically, the questions and underlying categories can be progressively further developed. That way, however, the evidence in this source can diverge from the predefined set of categories and criteria (cf. Landsheer & Boeije 2010: 67).[51] The sophisticated design of the questionnaire (consult with further going explanation in the appendix) helps to balance

[50] Although qualitative, also the research on Source 1 and 2 can include a quantified elaboration to indicate the relative importance of the event resp. actor in the area under study and its ecosystem(s). Sources to base this on are details on a start-up´s economic performance (Tip-Top 2015 Centrum voor Ondernemerschap Saxion Omzet Werkgelegenheid), investors standing behind these actors or networks, and more softly the relevance that is given from other actors in a triangulation process.
[51] I will furthermore be attentive to moments of silence or those aspects that are obviously not being shared (materializations of secrets, such as labouratory rooms and other non-social beings can be helpful in this and display the thesis´ general awareness for the possible agency of non-social beings and therefore takes the Actor-Network-Theory (Latour 1996) as an overarching theoretical perspective in both, observations and interviews.

these challenges and provides manifold angles to extrapolate each partners' network-scope and limitations.

Very concretely, these find manifestation in the maps that the interviewees are motivated to use in order to support the points they make (used e.g. in Chapter 11, p. 110 ff). In that vein, additionally to the semi-structured questionnaire, a visual geographical angle is employed. “Semi-structured”, that is pre-structured mental maps bring the specifications of linkages and proximity "down to earth" with indicating their interfaces on different geographical levels. Beyond the maps, to further enhance the accessibility and what May (2002) calls "cognition" [cognitive appropriateness] during the interviews, abstract theories or problems are translated into an everyday language of the field actors.

Along the following decision-matrix, a sensitive differentiation between own interpretation and literally field-evolved empirical evidence is guaranteed. It serves as a recipe for data collection and analysis[52] and – as in the other sources – to distinguish empirical evidence from non-evidence or counter-evidence:

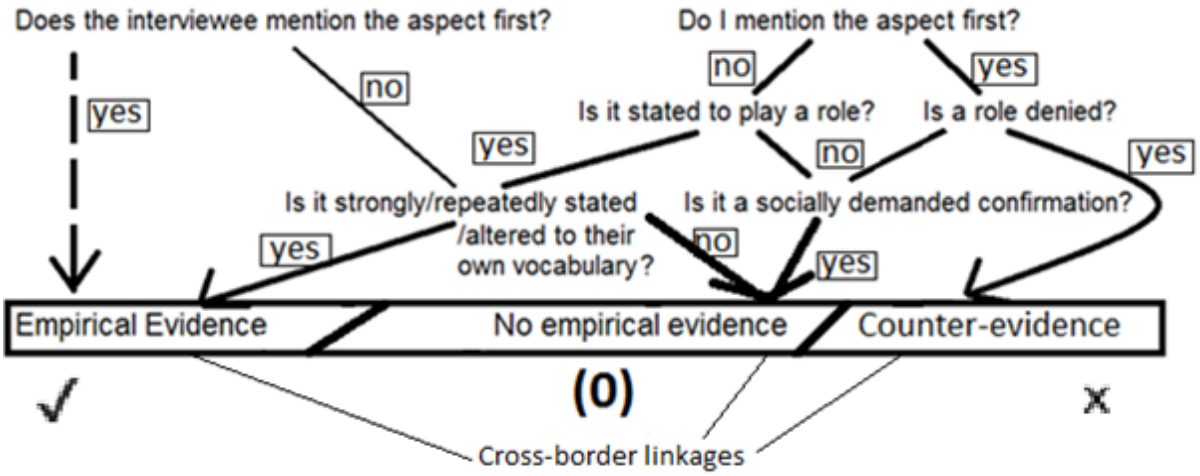


Figure 23: Decision matrix on intersubjective empirical evidence.

[52] “Aspect“ in the matrix can be read as “piece of evidence“ and refers to one of the three angles employed on Buzz, externalities, linkages and/or interdependences.

7.2.1. Interplay of the distinctive evidence to analyse the complex research object

The distinct sources as building stones of a multi-angled analysis can be brought together in the following model. It sees empirical pieces evolving from the relevant desk research, via the refinement of observations and interviews. Quantified along the adopted interface model, multi-source pieces of evidence coherently can be extrapolated and compared regarding the overall network-scope or borderedness in the research area. To underpin, it also provides the necessary insights regarding the current status quo of regional connectivity, between the poles of Glocal Buzz or-Pipelines.

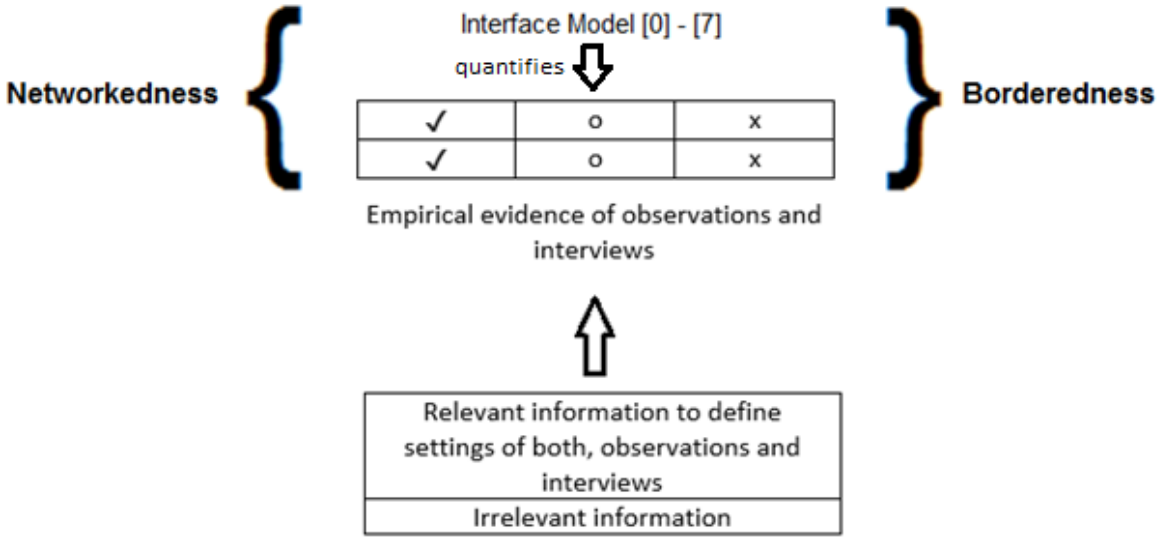


Figure 24: Interplay of research methods with regard to network-scope and borderedness.

The model shows, how the desk research leads to relevant observations and interviews that lead to positive or negative evidence on networkedness, quantified along the measuring tape of the interfaces model categories [0] “knowing that” and [7] “external interdependency”, thereby already implying a certain limitedness.

Due to the limitedness of each methodological angle, the three types of sources can only commonly elucidate regional connectivity. An added value thereby is the process of snowball-system research in the field of network analysis. In that way “unveiling common themes and regularities“ (Landsheer & Boeije 2010) based on overlaps and triangulation, ultimately solid multi-angled evidence can be derived concerning the

connectivity and borderedness of the field. While the desk research thereby is based on openly accessible knowledge, observations and interview report relatively tacit information gathered in semi-public and partially private settings. That way, especially the desk research balances the somewhat subjectively of the two other methods and their network bias due to the method of snowball system used to identify events and interview partners. However, the subjective bias of both, observations and interviews, is reasonably mitigated by the impersonal conceptual framework developed in the previous chapters.

To reach a balance between doing research on the limits of networks without pre-supposing a network-finiteness identical with the state border, different sources are generated in two research-phases. Firstly, displaying a general interest in the firms' entrepreneurial environment - "What brought me here is that I study geography and I am interested in why firms settle at certain location". Secondly, it involves the more precise, yet also more suggestive question about (national) limitations in this environment, rendering the implicit presence of borders explicit[53].

As an additional source on a meta-level, the research adds a chronological dimension: Extrapolating linkages between actors and helps to contextualise and estimate the observations related to them (cf. May 2002, cf. references to the research snowball in the goal matrix). For more subtle notions, is furthermore sensitive to notice the role that actors give to the researcher, e.g. as a cross-pollinator of information during interviews.

7.2.2. Bilateral and collective dimension of the research

With the methods employed, the thesis generates empirical insight on an intersubjective ground. This helps to develop both, thematic focus and representativeness for the fields observed multilateral "realities" (cf. May 2002). Based on these, the individual interviews seek to reveal personal perceptions within their respective individual context. The immediate proximity to the assumedly "real" research field is considered a crucial advantage for the ends of this research. Namely, it does allow for a more down-to-earth mapping and analysis of the cross-border field, without the artificiality of creating laboratory-like conditions for the ecosystem's actors.

53

In that way, the combined methods entail the same advantages of the focus group methodology that was already mentioned earlier as a possible alternative methodology (cf. Conradson 2005a Pratt 2002 in Gregory et al. 2011).

7.2.3. Goal Matrix to map empirical data

After defining the actors and regional scale of the research field, as well as the methodological way of how these actors' connectivity will be extrapolated and conceptualised, the research can proceed towards its objective to answer on the network-scope and limitations in the CBA.

Methodologically, the goal matrix helps to bridge the empirical evidence of the field-research and the analysis of the networkedness and borderedness of its actors. To transform the initial empirical data of the observations and interviews into a common framework that allows for analysis, codes are developed[54] and grouped axially and clustered into (sub-)categories after initially clarifying the "property" of each category (Strauss, in Landsheer & Boeije 2010). The thesis then selectively presents crucial coding to the reader and re-relates them to the original research question. To illustrate the criteria-based analytical outcomes, quotes from the original data files will be used for illustration and underpinned with socio-economic indicators into the [three] sources (Landsheer & Boeije 2010: 201-202) and their methodology.

Based on categories in the objectifiable manifestation of Stam's ‘systemic conditions’ of knowledge overspills, networks and finance, a matrix elaborates on that could have been observed (horizontal/vertical) and on the regional transnational dimension that was present (actually/explicitly). The methodological measurement to define the coefficient of the matrix´s criteria are based on the following assumptions, multiplied with their respective intensity along the interface model:

[54] Ideally, they are to cover every aspect mentioned, so that every new data would ideally fit in (Landsheer & Boeije 2010: 118).

Networkedness with respective manifestations in the field	**“Research Snowball”:** As a meta-category, the research process is made transparent, displaying what paved the way for a given event and what evolved out of it. These two notions elucidate the "Local Buzz" and subsequent Snowball principle that serve as a research "governance mechanism" to deal with the complexity and transparencies for externals in the research field. Helping to manage external contacts and most of all to filter (e.g. through "natural" triangulation), this detailed insight on the linkages is generated, so to speak as a reflexive third sourcing and illustrated as "[Following up]" and "[Path to visit this event]". **“Anchoring event”:** It gives the name of the event and how it relates more or less to Stam’s systemic conditions. Furthermore, it gives the initiating area of the event, with TW for Twente and WML for the Western Münsterland. To qualify the event, it furthermore adds the observed broadness of participant’s goals and the temporary or permanent dimension of the event. The numbering from ‘1’ to 14 basically indicates the amount of empirical data that substantiates claims on this event (or actor).
Borderedness	**“Actual transnational dimension”:** Actors from both, Germany and The Netherlands / (Manifold) reference to actors, (regulatory) frameworks across the state-border. Measurable in e.g. the registration bords of cars, the language (and accent) used, guest lists in digital invitations, supportive sponsoring partners. **“Explicit transnational dimension”:** Communicating the transnational dimension in the invitation or advertisement for the event or dealing with explicit cross-border programs, e.g. Interreg (cf. European Commission 2017). Directly measurable based on unambiguous key words used, such as “Dutch-German”, “transnational”, “cross-border” among others.

Based on the evolving matrixes, the pieces of evidence from the field can be brought together for an overview. It presents all relevant events and the research "snowball" that lead to [0] knowing about this event and what evolved in their cause (with at least a [1] on the interface measuring tape). Based on the criteria as given, it also remarks their transnational dimension with a "0" (not identifiable) or "1" (clearly identifiable beyond mere superficial contact). This facilitates the coherent and concise analysis that allows a preliminary answer on the connectivity along the peculiarities of the research categories within the Entrepreneurial Ecosystem in the CBA under study. It is then employed as a base to discuss the network-borderedness.

Networkedness with respective manifestation in the field		Borderedness	
ANCHORING EVENT, giving the respective SYSTEMIC CONDITION (Stam 2015)	RESEARCH SNOWBALL with Initial path to visit this event Following up	ACTUAL TRANSNATIONAL DIMENSION	EXPLICIT TRANSNATIONAL DIMENSION
0.	Initially through… Following up …	1	0
1.	etc.		

Figure 25a: Criteria to characterize the fieldwork events and the inherent research process.

Please note that in this goal matrix, it is not necessary to read all details displayed in the first place. Rather, it is meant to be a handy reading aid when referring to the several actors throughout the thesis.

8. RESEARCH VALIDITY

The multiangled research methodology provides a triangulation and relative certainty in accumulating different, yet unanimous pieces of empirical evidence and thereby generating findings. In the field itself, triangulation can most surely be identified, along the occurrence of "coincidences" as a guiding, comprehensive indicator for methodological saturation “coincidences” in the research field.

Coincidences relevant for this research are defined as

a) Coincidences in the explicit perception of the entrepreneurial actors themselves and
b) Implicit overlaps of linkages and/or references between the actors in the research field.

Arguably, the research field is displayed sufficiently, when by "coincidence", actors are mentioned as a reference or extrapolated as a linkage that are already familiar from another angle. Repeatedly overlapping linkages and/or references furthermore indicate the existence of both would indicate a minimum of cohesion and an indeed vivid and buzzing network in the research field[55]. This then would qualify the Entrepreneurial Ecosystem in the research field as locally buzzing.

To conclude on the research validity, every aspect of saturation defined relevant in the conceptual framework was included in the empirical data. This includes the categories of anchor institutions (Start-up Genome 2017: 34). "Coincidences" as a leading indicator of saturation have occurred in the research process, with repeatedly meeting actors again at unexpected places. This occurrence is not only the endpoint of the empirical research but indirectly also indicates that an Entrepreneurial Ecosystem with a Buzz among the actors exists.

Effectively based on the findings, two (sub-national) ecosystems, in Twente respectively Westmünsterland appear present in the research field. This demands a twofold saturation for each of the CBA-constituting regions as displayed in the following:

[55] Assuming, of course, that the previous desk research has identified an unbiased and representative sample of actors in the field.

- Saturation of research in Twente:
  The interview and research partners coincide with actors that are named crucial in regional publications from different sources.
  In "Kennispark & Koplopers: Zes Jaar valorisatie in Twente: de mensen en hun verhalen" (2017 Saxion University, includes a considerable amount of my research partners. Out of 16 actors interviewed here as representatives of the Twente Entrepreneurial Ecosystem, I met four repeatedly and initiated one additional interview. "The roadmap for the ondernemende student 2016 / 2017", a guideline for entrepreneurial students lists most of the event that I visited, among which the only monthly event, Hardstart "Pitch that B*tch".

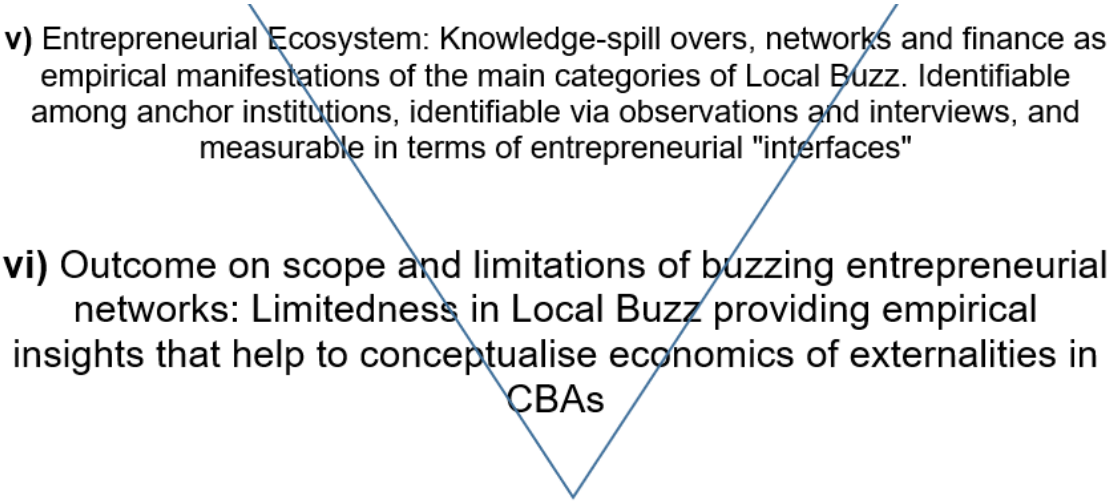
- Saturation of research in the Westmünsterland:
  Visiting the "AIW Fresh Business" breakfast, on my initiative from a roadmap I got at the WFG[56] economic development agency. Being there, however, out of eleven actors, I had already met three at the TobitCampusTage and one in the cross-border bus to the HannoverFair (co-chairing the session). Furthermore, I understood most references made to events (TobitCampusTage), but also to particular people ("Melanie from Gronau marketing does a great job", Benjamin Beloch), While some still admittedly remained unclear to me, these mostly clearly fell outside of the research field.

Of the geographical scope of both sub-national regions, at the end of my research and in the in-depth interview with Ingo Hoff, I was able to contextualize every reference (out of an approximate 20) that this crucial actor mentioned in the CBA under study. This contextualisation included every one of the pre-defined criteria of saturation for this research.

[56] = Wirtschaftsförderungsgesellschaft

EMPIRICAL FINDINGS

9a. OVERVIEW



viii) *Recommendations addressing regional policy making* ***(i)***

The overview, (supported with appendices A7a (graphic illustration) and A7b (elaboration on ad hoc interview-partners, pp. 196 ff)), identifies, that the network-scope on the domestic level is different relative to the scope on the transborder level, notwithstanding its identical proximity.

The empirical findings display, with manifold affirmation that the great majority of the collective "ordinary" interaction happens at a domestic level in all the categories of Local Buzz. However, bilateral interfaces across the state border can, in some cases, accumulate to functioning networks that allow for a limited common communication ecology. It is a crucial finding of this thesis, however, that these cross-border linkages are motivated by and embedded in a web of domestic linkages. Therefore, connectivity across the state border is crucially linked to the challenge of connectivity among domestic actors. It is to be seen as a reflexive influence on these in light with the theory of Bathelt et al. (2004). In result, the answering of the research question has to go beyond merely applying borderedness on the state border.

Step by step, starting with an overview and continuing to shed light on each of the research categories, the subsequent analysis displays how the empirical evidence can be connected to the overall question on network-scope and -borderedness.

9.1. Mapping the empirical evidence within the goal matrix

The basic finding on the network under study, approached through visiting of the business-events is their strong borderedness. Within the (sufficiently) representative selection of events in the CBA therefore, the transnational dimension does not appear as the norm, with the physical proximity of the respective other events being visible only in very few occasions.

As a collectively identifiable phenomenon, crossing the state border was absent especially for the crucial events with a broad and permanent dimension. As is re-affirmed therefore, the national border is a crucial dimension to map actors. As a first strong indices based on this preliminary finding, network finiteness is indeed strongly observable at the national fringe. Therefore, the aspect of national embeddedness subsequently is included in the analysis and re-affirmed in manifold of the following dimensions. Besides of giving a first overview of the research field, the reader can also consult the table for more detailed accounts of subsequent arguments that are stated in this paper. To proceed with the main line of argumentation, the reader can continue with the chapter's summarising discussion on page 78.

The following matrix entails the names of the selected entrepreneurial actors of this research. Their names will later be included when underpinning the findings. In order to reflect the (confusing) variety of actors and yet keep better overview, their main features and -apparent- regional embeddedness is given in brackets:

"(**TW**)" indicates the major embeddedness of firms and actors into the Dutch Twente region.[57]

"(**WML**)" the German Westmünsterland and (ML) the German region of the wider Münsterland region.

For everything that significantly goes beyond these regions, (NL) indicates the Netherlands and (GER) Germany. In the following, this differentiation is embedded in

[57] A most classic embeddedness would be the history as a TW-university spin-off, entirely financed by regional grants and venture capital.

a detailed matrix. On four pages, it helps to derive more insights from the respective "EVENTS's" ´ characteristics in terms of their cross-border scope.[58] [59]

Category ANCHORING EVENT with *systemic condition* and *broadness /Temporality*	***(Meta-) Category*** *Research Snowball formed by ACTORS* Initial path to visit this event, following up	***Category*** *Actual Transnational Dimension*	***Category*** *Explicit Transnational Dimension*
0. Underlying OWN BUZZ KENNISPUNT **(TW)**	Initial contact through a university course of Radboud University Nijmegen **(NL)** Manifold following ups	**(0)** Rather absent in terms of administrative accountability except for the cases stated, but many personal contacts (e.g. wives from Germany) no ex-communication possible. But increasingly interwoven with concrete projects.	**0**

[58] The table hierarchically differentiates the most intensively studied events from the less evidence-generating ones: TobitCampusTage (three days) and the HannoverFair Bus (a whole day from the early morning until midnight, and recapitulated during many interviews) therefore appear first, and in descending order differentiated from the other events that have been directly observed only a few hours each.

[59] Although this way, especially the contacts and relevant events in Twente (Enschede) could be filtered and facilitated easily, it also gave rise to the initial stepping stone Tobit.CampusTage to “the German side“.

1. TOBIT.CAMPUSTAGE **(WML, ML)** Network, (collaborative) knowledge Broad goal; twice annually; horizontal and vertical	Initially "known about" from numerous actors in Twente (**TW)**, Starting point for the research in the Northern Kreis Borken Following up Interviews: BENJAMIN BELOCH (WML, ML)	**0** (except for a Dutch MAVO-class (secondary education) from Enschede that remained among itself and is, therefore not considered systemically cross-border	**0**
2. BUS to HANOVER TRADE FAIR (**TW, NL / WML, DE,** initiated by Eliza Radema from Ondernemersloket Enschede) Network, Intermediaries/Support Services Broad and specific goal, annually, horizontal (and vertical)	Indirectly found through WFG Gronau **(WML).** Participation initially failed, but was facilitated through OWN BUZZ **(TW)** Following up Interviews: Ingo Hoff (**WML, ML** (**TW**)), Elize Radema (**TW** (**WML**))	**1**	**(1)** "We bring them literally across the border" (Elize Radema, Enschede municipality), it is not communicated as the main explicit goal. Other Buzzes also existed (VMO)

3. EXEMPLARY GAZELLE (indirect wider access through interview[60]), involving: Bahruz Mammadov **(TW)**	Initially through a representative of PNO consulting **(TW)** (met back at "Fund the future" (**TW, NL**)) and through a student assistant (**TW**) that participated in a presentation given at my internship organization (**TW**) Following up: Cottonwood Funds (**NL**)	**0**	**0**
4. NESST HARDSTART SAXION (**TW**) Knowledge, Network Broad goal; permanent weekly; mainly horizontal	Initially through: HARDSTART initiative at University of Twente UT (**TW**) [Ebird software company (**TW**)]	**0**	**0**

[60]It is one of only two firms which, according to Kennispark Twente (2016) are the (very influential) investor with the biggest volume.

5. PITCH THAT B*TCH (**TW**) Network Broad goal; Frequently, mainly horizontal	Initially through desk research checking the University of Twente-homepage (**TW**) on entrepreneurial activities Following up: NESST HARDSTART SAXION (**TW**)	**0**	**0**
6.1. FUNDING STEINFURT Kreispssparkasse KSK (**ML**) Finance Specific goal; temporary only once; horizontal	Initially trough own desk research No following up	**0**	**0**
6.2. FUNDING NEMO (**TW**) Network, Finance, Orienting knowledge Broad goal, temporary, horizontal and vertical	Initially trough HARDSTART UT (**TW**) Following up: Manifold “coincidences” with e.g. NESST HARDSTART (**TW**), Moneybird (**TW**) and Cottonwood Funds (**Globally active**)]	**0**	**0**

6.3. FUNDING NOVELT INTERREG (**TW**, **NL**) Finance Network Knowledge Broad goal; temporary; horizontal (and vertical)	Initially through Mailing list, through OWN BUZZ (**TW**)] Following-up Interview: Pieter Dillingh (**TW**)	**(0)** Some reference is made to German partners. However, no German actor is identifiable, assumingly because the domestic dimension is paramount for the first steps in the program.	**1**
7. AIW WESTMÜNSTERLAND FRESH BUSINESS BREAKFAST (**WML**) Network Broad; regularly; horizontal and vertically	Initially through desk research Following-up Interview: Ulrike Wegener WFG Kreis Borken (**WML**)	**0** restrictively, there is no codified way to deal with an appeal for membership from (**NL**) yet	**(0)** open for Dutch partners in the form of municipalities
8. (via Interview) FRAUNHOFER INSTITUTE UT (**TW, NL / GER**) Knowledge (collaborative knowledge) Intermediary	Initiated trough an awareness through OWN BUZZ (**TW**), impulse through being at the University of Twente for private purposes (**TW**)]	**(1)** not in the same region, only RWTH University Aachen (**GER**) – University of Twente (**TW**)	**1** with great prominence in the regional press

The following events/anchors where not directly visited and therefore do not include following ups. They are well-reported through multiple references of key actors involved.			
9. Skybox FC Twente (**WML**/**TW**) Network Broad; regularly; horizontal and vertical	Initial awareness through OWN BUZZ (**TW**), confirmed and extended at the HANNOVERMESSE and in the interview with INGO HOFF (**TW/WML+DE**)	(**0**) relatively limited to mostly German partners in the Skybox	**1** pretty prominent in local press and narratives
10. Gründerstein Award (**WML, ML** / **TW**) Broad, intensively over a few months, horizontal and vertical	Initially through the involved BENJAMIN BELOCH P17, (**WML**, **ML**)]	**1**	**1**
11. D.velop/NetGo campus (**WML**)	Initially through TOBITCAMPUSTAGE (**WML, ML, DE**), AIW FRESH BUSINESS BREAKFAST (**WML**), Interview Ulrike Wegener (**WML**)	**0**	**0**

12. Techconnn fair (**TW** / (**GER**))	Initially through HANNOVERMESSE **NL/GER**, Elize Radema (**NL** (/ **GER**))	(**0**) Unaware, that the date was planned on a (catholic-based) holiday in the federal state of North Rhine-Westphalia	**1**
~~13.~~ ~~Start-up Launch **(NL) that was announced but did not happen~~** did not come to existence due to too little participants	Initially trough own desk research	Did not come into existence and is thereby not identifiable	**0**
14. Military Horse Riding Boekelo (**TW, NL**) Network Broad; Annually, horizontal and vertical	Initially mentioned by multiple actors, due to great prominence in OWN BUZZ (**TW**)	**(0)** Although there is some awareness for the event in Germany, no German sponsor is identifiable, compared to plenty Dutch	**0**

Figure 25b: Matrix to give an overview on the basic outcomes.

9.2. Summarising discussion of mapping the field

The matrix of the empirical evidence shows that most events do not have a visible transnational dimension, with only a few, mostly explicitly communicated exceptions. This also means, that for most events that manifest the Local Buzz in time and space, the respectively other side did not play any identifiable role concerning the criteria applied, to none of the possible ways, neither participants, references made, contacts nor interdependencies observed. The linkages leading to and from the event mostly have a bordered dimension (with the few exceptions stated). Accordingly, the research is predominantly based on two "snowballs" which evolved mostly independently from each other in the respective states. This is underpinned by a more detailed enumeration of the (in-depth and more in-official) interview-partners (that are to be found in the appendix A7b). In differentiating the embeddedness of the actors and characterising according to the four angles on gazelle start-ups (cf. Bijeveld 2014: 29), it once again becomes visible that a dimension across the national border is mostly absent. Based on that, Buzz was observed in its multilateral manifestations among anchor institutions, with e.g. network-density and-centrality quantified regarding intervening opportunities (cf. overview of the conceptual framework 45 in this thesis).

The empirical pieces of evidence as mapped in this table display Twente as an integrated Entrepreneurial Ecosystem, concentrated on the institutions of higher education and development agencies (especially NovelT) in Enschede. In Germany, the Westmünsterland with the (Northern) Kreis Borken appears to have a limited ecosystem on its own, e.g. in the digital economy amongst four core players. Independently from Muenster, the Westmünsterland, Northern Kreis Borken in close proximity to Enschede is not only the earlier hypothesised “hinterland” (of Münster) but has an own regional functionality (cf. commuting data concentrated in Ahaus; extensive elaboration in the appendix A4.2). While confirmed on a sub-national level, Buzz is repeatedly confirmed as apparently absent on a collective level in the overall CBA. As networks do not seem to go beyond the state border, they do not allow for coincidences to be likely in the cross-border field. Methodologically, this collective network disruptiveness is based on the systematised observations (cross-checked with interview data) that map the field, mainly based on the connectedness of events and actors related to them.

The evidence of this chapter leads to the preliminary finding, that on the collectively observable level, there is no (classical) common Local Buzz in the CBA under study. On a meta-level, this has also been visible during the process of snowball-like research.

A general distinction between the Dutch-based Twente and the German-based (West-)münsterland is justifiable due to these distinctive findings. They also justify the assumption of a special situation in the very research focus on a CBA. Thereby, it somewhat re-affirms the initial border-line that was drawn through the conceptual illustration of Bathelt et al. (2004), cf. Figure 2:

The Netherlands	Germany

Figure 26: Horizontal distinction into two differing Entrepreneurial Ecosystems

From a conservative point of view, however, the national categories might be overstretched at this moment of only preliminary empirical evidence. Mostly indeed, a difference between Twente and the Westmuensterland was depictable. This does, however, not preclude these regions from being distinct also towards their domestically neigbhouring regions. Following pieces of evidence will, therefore, be taken into careful consideration when qualifying the specificities of network-scope and limitations in the research field, beyond a merely transnational opposition.

9b: SCOPE AND LIMITEDNESS OF THE THREE RESEARCH CATEGORY'S ENTREPRENEURIAL MANIFESTATIONS IN THE FIELD

As described in the conceptual framework of this research and to gain more insight on the first evidence, the following paragraphs will address Local Buzz from the three conceptual angles externalities, linkages and interdependences. It is noteworthy, that their order in the main body is chosen in accordance with the how a hypothetical new actor in the ecosystem(s) would most likely interface with and get to know others. It thus starts with more superficial interfaces [0] and gradually proceeds to the most interdependent form of interfaces [7]. Thereby, the final text provides readers with the chance to also gradually "interface" with the networks under study.

As stated, the three dimensions become manifest among entrepreneurial anchor institutions in the form of knowledge-spill overs, networks and financial investor-investee relationship, they all show the tendency to have their limits coinciding with the state border. The arguments made are supported with multiangled, empirical evidence.

Field evidence such as foremostly quotes are visually marked as indented in the main text body, thereby, distinguishes statements of actors (indented) from their more abstract reflection (which form a non-indented frame to each statement). In few cases, however, the essence of several statements is put together in a more abstract paragraph. This is mostly, when statements and findings from the field merely support already existing and widely accepted theoretical notions from the field of e.g. entrepreneurial studies.

The summarising boxes at the end of each finding provide a handy short cut to merely follow the line of argumentation throughout the three chapters of this main body of empirical evidences.[61]

[61] Summarising boxes to be found on pages 91, 95, 103, 108f, 112, 123f, 129, 132, 133.

10. Theoretical category of EXTERNALITIES: Analysis of the scope and limitations of knowledge-overspills

The general borderedness of the Local Buzz is affirmed in the following descriptions of observable knowledge-overspills. In terms of orienting knowledge and (collaborative) learning, this chapter confirms, that bilaterally tying linkages of Buzz are sub-nationally present, but mostly absent across the state border. While the geographic cross-border orientation in terms of everyday life is "rather smoothly" disrupted, the orientation within the knowledge economy shows an even more dramatic difference among the actors from both sides of the state border. In short, while the orientation on cities, shopping possibilities etc. does have some cross-border reach, this is much less for the existence of universities, let alone investors.

10.1. Orienting knowledge-overspills about the regional knowledge infrastructure

In the orienting knowledge within the wider potential entrepreneurial range of +/- 100 km[62] in Germany, Twente actors appeared greatly limited. Even Dutch actors from the deliberate science (to business) sector lacked a general orientation beyond the very well-known domestic level, of the same scope and beyond. While the University of Münster (and Osnabrück) enjoy(s) relative prominence, the University of Applied Sciences Münster does much less. It, however, still ranks more visible than Universities in the nearby Ruhr-area, which appeared as “black holes”, that nothing is [0[63]] “known about”. They were not even passively recognisable (e.g. in the cases of Marco Strijks, Pieter Dillingh, Egbert van Hatten, notes on each interview are available in the additional appendix to this thesis) for Twente actors that are undoubtedly experts in orienting and providing orientation on a Dutch national level. In contrast to these which were not always sure about the existence or non-existence of major universities (TU Dortmund, Bochum), German actors such as Ingo Hoff or Ulrike Wegener in contrast to others can actively elaborate on them. In the (wider) domestic region, this even

[62] Template in appendix A2, p. 177.

[63] From here on, the numbers in brackets directly refer to the extended interface model (from [0] – [7]).

includes private or distance-learning institutions, including about co-operations (Max Planck and Fraunhofer implements exist program, Ulrike Wegener 54:20).[64]

A dramatic illustration of the limitedness of sector-specific cross-border orientation among actors is the software cluster in the Westmünsterland: The leading regional software firms Tobit, Shopware, D.velop, Netgo and limitedly Opwoco are in mutual contact, and every Westmünsterland interview partner has at least heard about them [0]. Additionally, many have (tacit) details to share or are befriend with some of the entrepreneurs ([5] relation respectively [7] external interdependency, see footnote for a detailed account).[65] In contrast, none of the interview-partners in Twente had even heard about these firms ([0] knowing that) or could reveal any kind of connection.

> A striking example for this is Edwin Vlieg, co-founder of the Twente software firm Moneybird (and active e.g. in supporting Nesst Hardstart). Him not recognizing any of these actors is even more remarkable, since his products have strong similarities with the accounting software from D.velop.[66] The other way round, Ingo Hoff had never heard of the Moneybird or comparable software companies, while being closely connected to some of the Westmünsterland firms from the same sector.

In sum, many actors lack a general and specific orientating knowledge of the respective other ecosystemic framework and systemic conditions of the neighbouring area that is

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[64] With limitations, this is also for Bahruz Mammadov (minute 19:50) as a non-Dutch gazelle company of the Twente Buzz that does not know any of the names written down, except for Max Planck ("I know that it is good and famous, but no [1] contact" (cf. interface model). He surely knows the TU Dortmund, heard about the University of Bochum, but not about Duisburg/Essen (29:50, Bahruz Mammadov Interview).

> In this case, however, my knowledge as a Cross-pollinator seemed to be attractive (cf. latent transnational dimension), with asking for "is there an IP generating unit in this area" (29:10, Bahruz Mammadov Interview) and showing interest in the FH Münster institution in Steinfurt "is it Max Planck"(30:00, Bahruz Mammadov Interview), and the fact that it is the beta-faculty of the University of Applied Sciences Münster (Egbert van Hatten: I don´t know about that, but interesting if you had a link or something (51:00, Egbert van Hatten Interview).

In theoretical terms, this is line with the sharp, non-gradual disruption that Lunden (1973, in Van Houtum 1998, Figure 2.4.) displays for formal knowledge which in his model appears much more disjunctive than the more personal knowledges (cf. appendix A4, p. 186 ff).

[65] As an example, while most Dutch actors do not recognize any of the four major software firms in the Westmünsterland, Ulrike Wegener naturally knows all of these (Tobit.software, D.velop, Shopware (Opwoco), "of course" (56:00, Ulrike Wegener WFG interview)) and mentions another one (Netgo). She is furthermore able to outline the detailed and un-codified [5] relation it has with Opwoco "Opwoco kind of span off from the same building in Coesfeld" (54:20, 58:20, Ulrike Wegener WFG interview.

[66] Furthermore, they had been set equal by Marco Strijks after explanation of the Westmünsterland firms with "ah, so this is our Moneybird [software company]."

yet across a state border. This is even true for actors that spent several months in the respective other country with fluent language skills (such as Pieter Dillingh, Egbert van Hatten, Benjamin Bloch[67]). Knowing about each other [0] is the necessary condition for Business contacts [1+]. With the additional information circulated in a Buzz, this knowledge can solidify in concrete benefits at lesser transaction costs.

10.2. Facilitation of orienting knowledge overspills

“Knowing about” [0, in the interface model] existing actors from a common Buzz can (in)directly cause the facilitation or establishment of [1] contacts and thereby shape the networks within an Entrepreneurial Ecosystem. As the data shows, a network gap is also identifiable for anchor firms/networking events on both national sides.

> The Boekelo Horse Riding event in Twente is a fruitful example. It is a networking event that every of the Dutch interview partners knew to tell a few lines about (cf. 51:00, Egbert van Hatten Interview, Marco Strijks wet), and an event that “every CEO in The Netherlands has on his/her agenda“. The networkers on the German side, however, had not necessarily even heard about it. Exceptions to this, however, are present and indicate limited overspill of at least "[0] knowing that"[68] across the proximate border.

In general, across the state border unlike on the domestic level, intermedium "lubricating oil"[69] to node actors is sparser (2:20, Egbert van Hatten Interview).

> Van Hatten’s science shop Wetenschapswinkel, as an example, links knowledge between citizens/SMEs and scientific research. It does so, however, nearly exclusively on the domestic level of predominantly Twente and "99%" nationally (3:20, Egbert van Hatten Interview, focus on Hengelo and Enschede (36:30)). Here, Van Hatten knows a lot of partners very well, in contrast to the German "hinterland" of Twente (37:30, Egbert van Hatten Interview).

On this background, my research is in no way exhaustive, neither are the underlying data analyses and the knowledge about the functioning of the region. So was I surprised, about the financial Geography that Cottonwood Alu displayed, (Berlin having money for start-ups) with the Ruhr-area having money but a lack in smart capital (similarly to the problem in the firms´ original spot in New Mexico, USA).

[68] As some report however, German actors are increasingly discovering the event, although, e.g., not visible in the still exclusively Dutch network of sponsoring partners.

[69] = “smeerolie".

On the other side, at a domestic level in Gronau, social events such as the traditional “Schützenfest” and the “Jazzfest” have been reported as (more informal) lubricating oil. Trough sponsoring and access to the event’s VIP-rooms as “side-effect“ (39:40, Ingo Hoff 20-06-2017), there is opportunity to “just chat, without making an appointment and feeling obliged to stick to 30 minutes conversation“ (40:20, Ingo Hoff 20-06-2017). Stepping in front of the entrance door, finding settings of exchange at low transaction costs like in this case, significant parts of the firm’s projects have been stimulated[70]. As stated when asked explicitly, both is in Germany, but not in the Netherlands.

Although physical proximity is reported to play a strong role, regional connectivity and an effort to connect is not necessarily limited to only physical [1] contact. As with Linkedin and Xing, increasingly digital business networks play a significant role for network-connectivity (cf. Bahruz Mammadov). It serves to check people (also for job selection procedures), or just to share news of the “lot [that] is happening there“ (23:00, Pieter Dillingh Interview, vaguely reminding on the approximation of Local Buzz).

Indeed, a clear borderedness could be depicted for such networks to circulate knowledge in a digitalised Buzz-like form (54:20, Ulrike Wegener WFG interview, with exceptions stated by Ingo Hoff). While Linkedin as the international market leader is gradually less known among the German interview partners, the German equivalent Xing is mostly unknown within the Twente Buzz (cf. Bahruz Mammadov (Interview (21:00) and Egbert van Hatten Interview (51:00)).

In terms of Linkages on the rather superficial level of “[0] knowing that” and having [1] contact with each other, networks evolve clearly connected to the regional level. Confirming the overall observations at the events, the regional networks do not cross the (local) state border and, therefore, remain domestic. Therefore, the hypothesis a) of a Glocal, international and truly Buzz does not appear to grasp the situation adequately.

[70] Directly or indirectly though following up-meetings that leads fruitful, external matches.

10.3. Processes of collective regional learning

Also concerning the Entrepreneurial Ecosystem as an environment for learning, Buzz does not frequently cross the state border. Learning through knowledge-overspills, in most cases appears absent between Twente and the Westmünsterland, both on the horizontal level between institutions and vertically between service-provider and client. This is especially for the spontaneous and non-explicit manner of knowledge acquiring, such as in resonating, feedback loops and filter mechanisms.

10.3.1. Learning through systematic feedback

Regional learning is based on the domestic level. Even if inputs come from across the border, systematized feedback In a deliberate and multi-step way has been observed at the (sub-)national collective level.

The best-documented example of this borderedness within the area's knowledge economy are the "Westmünsterland Tobit.CampusTage (GER). The three-day event of the Tobit.CampusTage is illustrative in that, displaying a Local Buzz par excellence in the area under study: In none of the various presentations that were visited, Twente or actors from Twente have been mentioned, neither as a reference, a business contact, nor as a general framework or market. Compared to that, actors in the Münsterland (and the rather distant regional centre of Münster) have repeatedly been mentioned over and over again on a collectively observable scale.

As an example of regional, domestic learning, at the Tobit.CampusTage, the feedback-based process of knowledge-overspills could be observed. I

> In this case, except for the networking function (visible in the marketing of CamupusTage), the Tobit.CampusTage includes actors from governance, economy and education, with a step-by-step feedback strategy enhanced by the proximity of "short distances and ways" within the city (Tobias Grothen, founder of Tobit). This implies both, low transaction costs (cf. "Here in Ahaus, it is more natural than elsewhere to pay without cash") and high feedback externalities (ibid.) on a domestic level.

In addition to the vertical feedback loops within the firm, retailers and customers where invited for extra sessions on new products that also allow the organising company to

deal with pioneer feedback. Beyond, Tobit.Software engages in official regional cooperations that can serve as feedback-loops for product designs. Examples are the cooperation with the major, super-regional but region-based supermarket "K&K"[71] and is informally linked to the other major software companies of the (sub-)region.

> Similar to the intended feedback- and learning processes in the Westmünsterland, also in Twente, Pieter Dillingh reported how the companies in the region use the networks to resonate[72] among each other. Although the underlying (industrial) networks have an institutionalised status, the learning processes “happen informally“. It also happens tacitly, without great transparency for outsiders (15:40, Pieter Dillingh Interview).[73]

The dimension of “learning” is not limited to mere “learning about” but can also take the collaborative form of creating knowledge in terms of “learning with” and “learning through”.

> As Maurice (Fraunhofer Institute) literally puts it, their research centre is “not only doing research *for* [an actor], but doing research *with* an actor“. He emphasizes face-to-face contacts as an unfiltered channel to test[74] and define a common project. This is relevant to collaboratively define the research project (Interview Maurice Fraunhofer project centrum).
>
> While present at the domestic scale, he reports it absent for contacts across the state-border, where he “feels far away“ (44:10, Egbert van Hatten Interview)]. Unlike in his domestic environment, he would not have an intuition for "where to go for a ´wild idea´“ of his[75] (41:30, ibid.) He does not have the direct initial [1] acquaintances for vague ideas and also does not know who would have them (44:10, 52:00, ibid.). In contrast, “in The Netherlands, [he] could find a path, talk about wild ideas with “half acquaintances“ and somehow find it to the right person“ (43:20, ibid.). Passively recognisable, he is also among the first

[71] The coopeeration "klick&kollect“ is a pilot in internet-based shopping in an ordinary supermarket.
[72] = klankborden.
[73] This rather collaborative learning process depends crucially on the tacit knowledge of the actors and has to be distinguished from knowledge that can be duplicated and is available in a codified form.

[74] = aantesten.
[75] one German professor is stated as an exception, however.

addressees[76] for various (rare) ideas that, for about 99%, stem from the Netherlands (cf. 5:00, ibid.).

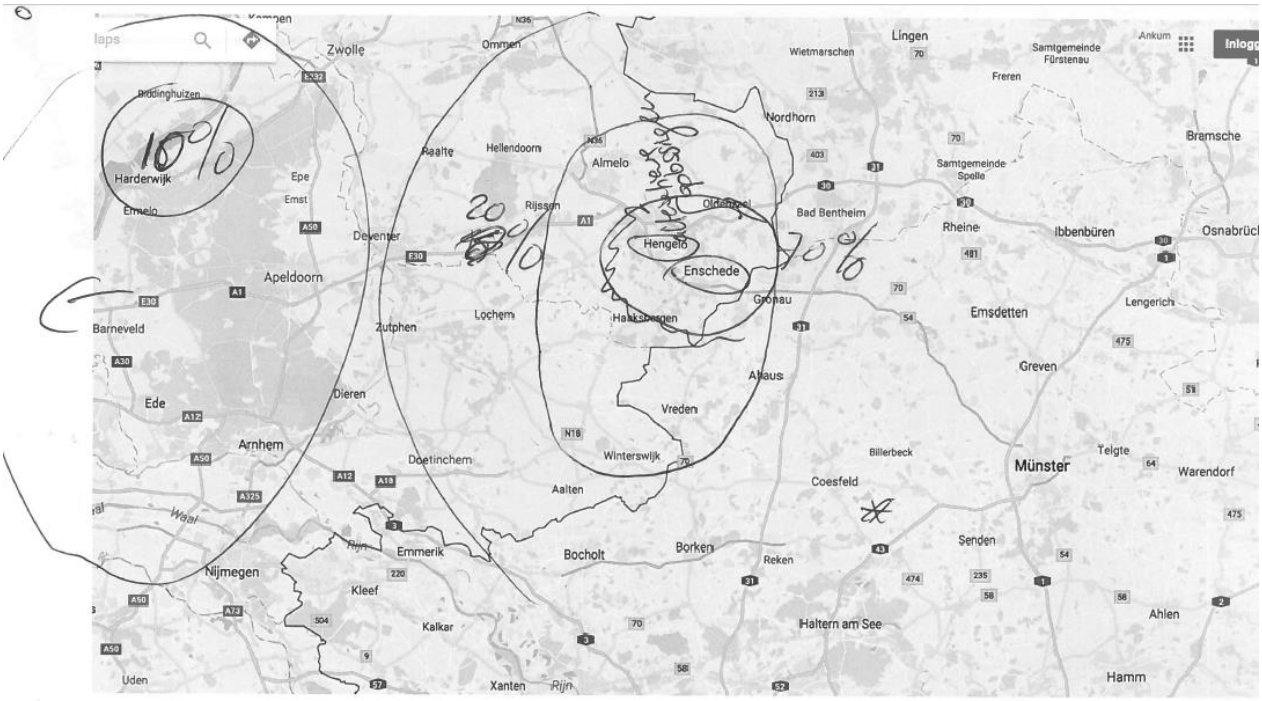

Figure 27: Regional Range of Activities of the “lubricating oil”, Wetenschapswinkel at the University of Twente, Egbert van Hatten.

these examples in both their positive and negative dimension, show the borderedness of buzzing, collaborative learning. In the collective dimension as described, it was neither observed nor identified. As in Egberts van Hatten´s case, it has even been negated for the region under study. However, the few exceptions that have been identified are remarkable and will subsequently be regarded in more detail.

[76] = voorkoker.

10.4. Conclusion: Scope of knowledge overspills

In sum, knowledge over-spills and regional learning appear only very limitedly across the state-border.

Assuming their proximity, the Entrepreneurial Ecosystems of Twente and the Westmünsterland have very sparse transnational linkages to exchange the externality of knowledge within the system's communication ecology. As in the events under study and, in the ways as described, the flow of information appears clearly bordered along the national border (being an important dimension of the resources within and absorbed through the Local Buzz[77] cf. also Porter 2000). In the research model, this means that interpersonal linkages across the state border are severely less frequent than domestically, and drastically absent with regard to their collectively visible dimension.

[77] cf. Porter 1998c: 18.

11. Theoretical category of LINKAGES: Analysis of scope and limitations of regional networks

With only a few cross-border linkages being identified, the following analyses the scope and characteristics of these with help of the criteria that underpin, *self-maintaining Glocal Buzz (hypothesis a)* or *Glocal Pipelines (hypothesis b) respectively.* In that way, subsequently to their mere occurrence and quantity, the quality of the relevant entrepreneurial networks is analysed.

Although exceptional, it could be shown how some linkages do cross the border between the two sub-national Buzzes. Additionally, when methodologically “teasing out” the actors, many displayed (in-)direct links below collective observability.

> Exemplarily, that was with the educational institutions through children studying or having studied in Twente there (speakers at Tobit.Software), or even the interest to use one´s language skills in Dutch to broaden the own business (ibid.).

A "talking with" seems to be present for many actors in the CBA, while a "talking about" or "referring to" is absent (in publicly accessible settings). In the following, the characteristics of these quantitatively rare linkages are explored along the conceptual sub-categories of

11.1. Self-maintenance of linkages based on

11.1.1. The (subjective) scope of a common framework and possible

11.1.2. complementarities.

These characteristics help categorise them into the conceptual grid along the criteria for either Buzz or Pipeline.

11.1. Self-maintenance of linkages

Despite the efforts made from some parties (21:20, Ingo Hoff 20-06-2017), the border is reported to be still highly relevant ("I do not say, that we are totally at the point zero, but, regarding automatic maintenance, “networks do just stop“). [78]

> Exemplarily, Egbert van Hatten states that his “science-shop” initiative "Wetenschapswinkel" is largely forgotten in Münster. This is even after three months of intensive engagement (38:20, Egbert van Hatten Interview) and although remaining initial [1] contact details to “mail around” (7:20, 18:10, Egbert van Hatten Interview). "Sadly", however, there are no firms or agents in Münster that he could recall for his (Dutch) clients.

This absence, once again, implies the Netherlands as the territorial demarcation of his role as a deliberate, but also as a "coincidental" and cross-pollinating lubricating oil.

11.1.1. Transaction costs of initiation and development

Even when initially [1] contacts and [2-3] exchange where rather intensive, the (facilitated) relations are reported to be largely absent in the long term. Also available (public based) facilitation runs the risk of getting “stuck in [the Euregio] network” in the first place or “might not be fruitful” along the line of the more in-depth categories of the interface model, such as [3] interaction, [5] relation, [6] success (41:30, Egbert van Hatten Interview;, cf. 2:30, Marco Strijks Saxion Interview on TAT Rheine which somehow “gets stuck"[79]).

> As Pieter Dillingh puts it, he has "been speaking with a lot of companies throughout the years, but they did not stay in his "system" of networks beyond merely [0] knowing that. Similarly, although being involved in a project with broad support and permanence[80], Marco Strijks (Interview), although remembering names ([0], 34:10,) meanwhile reports that linkages thinned out[81] (51:40, ibid.). Reactivating these links, beyond the merely indirect interface of

[78] = “Ich sag nicht, dass wir bei Null stehen, aber…“.
[79] = het blijft stokken.
[80] Industriekring, Technologiekring Twente, Stichting Vriezen and then Euregio, from 2001-2006; 33:00, Marco Strijks Saxion interview.
[81] = verwatert.

[0] knowing that in both cases, would demand re-investments "in this contact, including necessary transaction costs" (36:00, Pieter Dillingh Interview).

Even if [1] contacts are repeatedly reported as "nice", feasible business interactions hardly evolve out of them (cf. (12:40, Ulrike Wegener WFG interview). In sum therefore, the respective level in the interface model is not (automatically) maintained across the border. This disqualifies for a Local Buzz and, once more, undermines hypothesis a).

11.2. Common framework

Although restricted regarding [automatic] maintenance, the preceding aspects also significantly display a relative manifoldness of public and private intermediaries across the state border. These have their main rational in bridging the different respective frameworks.

11.2.1. Scope of digital frameworks

Also, for the identifiable digital frameworks to channel information channels national differences between Germany and The Netherlands in the use of social media and digital business networks is remarkable in national terms: Buzzcapture.com (2016) and Marketingfacts (2017) report manifest differences in the usage of digital networks. Remarkably, especially the usage of Twitter and Linkedin in The Netherlands stands out as much more frequent compared to Germany.

Social Networks / Business Networks	The Netherlands (inhabitants: 17.0 mio = 100 %)	Germany (inhabitants: 82.2 mio = 100%)
Twitter	2,5 (14.7%)	1,0 (1.2%)
Instagramm	2,1 (12.4%)	7,0 (8.5%)
Facebook	9,6 (56.5%)	28,0 (34.1%)
Linkedin	6,0 (35.3%)	7,3 (9.0%)
Xing (Source: Wirtschaftswoche 2016)	(data not available)	10, 4 (12.7%)

Figure 28: Digital manifestation of linkages (cf. Buzzcapture.com (2016)).

In general terms, the gradually bordered digital frameworks display a differing reality in both countries on average that also extends to the checking of people (cf. Bahruz Mammadov, 23:00 Pieter Dillingh Interview as mentioned before). It can be interpreted twofold, as a moderator of and indicator for differences in the framework conditions of doing business.

11.2.2. Subjective scope of common frameworks

An orienting knowledge on the respective other´s (uncodified) framework was frequently displayed for the "general characteristics" of doing business in the Netherlands respectively in Germany. Methodologically, these were revealed after making my cross-border interest more explicit. Interestingly, they did so without being asked to do so.

In most cases, these actors included cleavages such as informal vs. formal and reflections about the national market size and its implications. But even although some assumptions appear in a simplistic black and white, they mostly indicate previous face-to-face [1] contacts, respectively the overspill of this (stereotyped) knowledge [0 - 1] from others. Stressing difference[82], the opinions/knowledges on each other reveal some awareness and a general orientation about each other. This also indicates a somehow shared business reality that includes both, a bilateral "talking with" as well as a collective "talking about".[83]

Content wise, the common denominator thereby is a more flexible, risk-taking and informal way of doing business in The Netherlands; contrasted by the German manner that appears more static, less risk-taking and formal, but thereby also more foreseeable and precisely planned.

[82] Which might be based on the implicit assumption that this was what I wanted to hear as a researcher

[83] As a reference for this argument in the added table, the two neighbouring states are opposed from a subjective point of view as reported by actors from Twente and the Westmünsterland and can be found in the appendix A5, p. 188 ff.

The Netherlands	Germany
Unofficial way of doing business *Indicator* systemic condition “common framework” The Dutch advertisement "We find your business potential", marketed with the unofficial picture of an easy going consultant (cf. Benjamin Bloch, personal interview) Corporate legal form of the company (from the own country) not of importance	**Official way of doing business** *Indicator systemic condition “common framework”* The German advertisement "We find your business potential“, marketed with the official picture of a serious consultant (cf. Benjamin Bloch, personal interview) “To do business in Germany, you have to have a German corporate form“ (Marco Strijks) The word given is like a contract (16:30) Ingo Hoff 20-06-2017)
Indicator systemic condition “talent”: Competence-focused for applicants	*Indicator* systemic condition “talent“: Diploma-focused for applicants, but also in the academia, with a clear route of who to approach first (and of the personal approachability, Egbert van Hatten, Interview
Indicator systemic condition “intermediates”: No personal reference needed to networking (“we are here to network, aren´t we?“) with a broader relationship goal of “what can we mean for each other”[84] (Ingo Hoff, Interview)	*Indicator* systemic conditions “intermediates”: Personal reference, advice facilitates networking (“Excuse me, could you make me acquainted with this person, please?“)

[84] = “Wat kunnen we voor elkaar betekenen“

<table>
<tr><td colspan="2">Limitedly being seen as in the same framework
Twente and the Münsterland share some characteristics of mentality, people in both are (too) modest and do not talk so much about their successes modest (Ulrike Wegener, Peter Schildkamp).
The Netherlands need Germany more (as a Market) than vice-versa (Peter Schildkamp), [an indicator, therefore, is also the greater language competence of the Dutch in German] (cf. Ulrike Wegener)</td></tr>
<tr><td colspan="2">Market size

leading to a different orientation and different needs for both resource access and facilitation</td></tr>
<tr><td>Strong global orientation

A small market, early (or exclusive) internationalisation for starters

Seemingly homogenous, but multiple borders, Oost/Provincie (NovelT event)</td><td>Strong national orientation

A rather big market, supposedly leading to a different critical mass in moving away and global interconnectedness in market terms (see discussion on this in the appendix A5, p. 191)
Seemingly homogenous, but multiple borders on the levels of federal state, Münsterland, (former-)Kreis level[85]</td></tr>
</table>

Figure 29: Typical categories to juxtapose the respective other in the border-adjacent areas of Twente and the Westmünsterland.

Interestingly, the categories given display a strong focus on the national rather than a regional scale. Statements are framed with “in Germany, it is like this” instead of “the Münsterländer appear to be like that”. Concluding on hypothesis a) and given the differently (perceived) frameworks, the status quo of common Buzz is very limited. In

[85] Especially the last aspect of different market sizes is part of the explanation, why language knowledge of German is widespread among the Dutch actors in the Twente Ecosystem, whereas knowledge of Dutch is limited among German actors.
This is despite the agglomerative gravitation of especially Enschede. The fact that many do, however, speak some Dutch, is primarily in this density unusual in the German context and can be taken as an indicator for linkage with actors across the border in some way. The author of this paper studied socio-linguistics before and is aware of the briefness of this explanation.

the adaptation of Bathelt's (2004) model, the relatively differing entrepreneurial- yet similar geographical framework, is visualised with limitedly "shared values and interpretative schemes" along the fewer linkages:

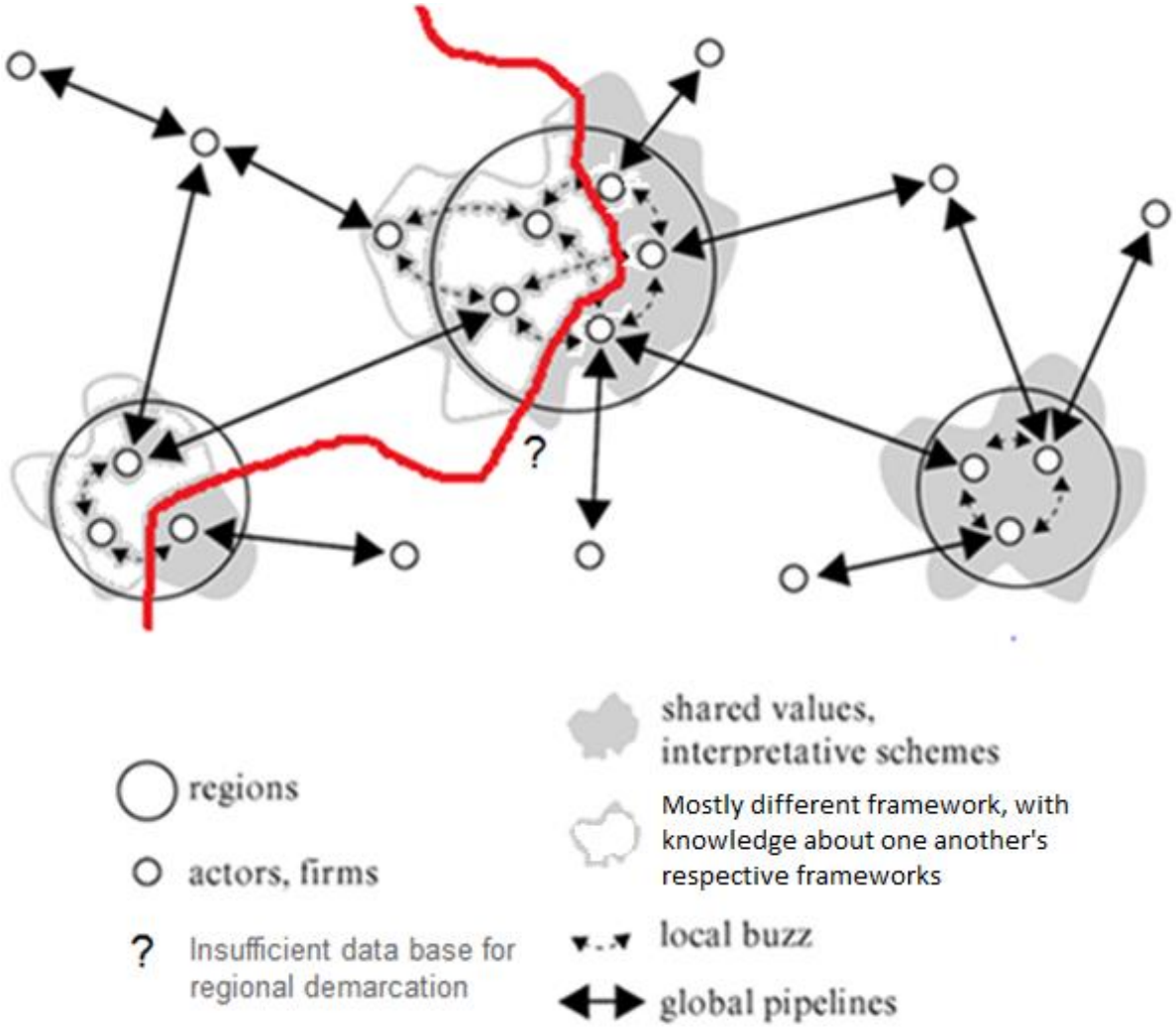

Figure 30: Local Buzz, (Differing) framework in The Netherlands and Germany in the model of Local Buzz and Global Pipelines.

11.2.1.1. Complementary appeal to outweigh transaction costs?

The participant´s simple differentiation between Germany and the Netherland can positively indicate complementarities. It communicates a simple message to give a general [0] orientation of what to expect from a (cross-border) business partner. This stereotyping, yet positive knowledge externality in the respective Buzzes can help to overcome possible "thresholds of indifference**".** It implies a lack of incentives for cross-border actions. In sum, clear complementary positioning follows the argument of Pieter

Dillingh (NovelT), that Dutch and German firms "can profit a lot from each other".[86] Also given the largely disqualified hypothesis a), this might confirm hypothesis b) in expecting Glocal Pipelines across the border.

> As an example, this was deliberately used during the “IDkon” Interreg-project, marketed as "German engineering and Dutch Design", also summarising the - mostly sticky - distinction between both countries as met in this research (for further elaboration see appendix 5, p. 191).

Along with pipeline-like transaction costs to establish and keep the linkages maintained and vivid, also the pipeline-like quality of complementarity in simplistic national (Dutch/German) terms have been reported. Although simplistic, these categories can contribute to addressing the crucial issue of the visibility of potentially complementary linkages.

Conclusion: Scope of knowledge overspills

In that way summarising, the existing transnational linkages appear as *Glocal Pipelines (hypothesis b) rather than Glocal Buzz (hypothesis a).* The tables and discussions displayed that the cross-border proximity does not erase (perceived) differences in the respective actors´ frameworks. Due to relatively few visible linkages in different frameworks, a critical mass for the maintained information ecology of "Buzz" with "automatic maintenance" is not reached.

In that way, many of the transnational linkages observable have a complementary attractiveness (cf. interface model) in the area under study require careful maintenance, similarly to Global Pipelines. This is in contrast to these "automatically" supplied in a vivid Buzz, but it is also in contrast to mere connections without complementary appeal.

[86] To nuance this positive estimation however, “talking about” in difference to in-Buzz "talking about" individual actors, appears more about an outgroup here. Contrasting the own behavioural framework with a neighbouring other might enhance the visibility of the own, common framework and thereby strengthen the internal Buzz.

11.3. Nuancing characteristics of the linkages in the area under study

Significant differences are identifiable when comparing the bilateral and collective level of linkages. However, they can only analytically be fully disentangled, since the sheer quantity of bilateral pipelines in the research area intertwine both levels, appearing to stimulate a limited collective Buzz in physical proximity.

11.3.1. Bilateral, latent linkages

Without the externalities of knowledge overspills among transnational actors, actors do mostly not "interface" each other across the state border. However, exploring the characteristics of Buzz in a transnational Entrepreneurial Ecosystem, for many actors in interpersonal conversations, a latent transnational dimension was identifiable.

> At the Tobit.Campustage, this becomes clear when explicitly asking a leading official from "Münsterland e.V.", about his engagement across the border at the Tobit event. He reports a concrete plan to become active in Twente, something that was not visible to anyone during his presentation and the references he gave.
>
> At the same event, a digitalising craft-firm from the Münsterland city of Rheine gave a presentation without any references to any actor in Twente or the Netherlands. However, as turned out in the subsequent private conversation, the owner can speak Dutch fluently, has a son studying in Enschede and a firm interest in “the other side”.

As an important finding, both examples illustrate *interpersonal interwovenness on manifold levels, yet without visibility on the collective level*. Although including actors with strong affiliation with the neighbouring region of Twente, “talking about“ actors is seldom present.

In that way, the existing (temporary) Buzz does not develop functionality as a mechanism that spreads releasable externalities to one another in an observable manner and is at least one intervening opportunity away.[87] The transnational

[87] An impressive example in terms of latent cross-border potentials with a direct implication on the aggregate welfare level is the decision of Patrick Brünnings (Opwoco Software, in telephone interview), not to open another branch of his company in Enschede (where he still studies and, very

dimension of the area, therefore, remains relatively "invisible", preventing potential and geographically close actors to find each other or potentials to be invisibly ignored. This gives a limiting answer to the possibilities of transnational Buzz and is, therefore, again stronger in line with hypothesis b) of "Glocal Pipelines".

Expectedly without other actors engaging in the same, a critical mass of mutually re-enforcing connections is reached only in exceptional cases. Metaphorically, due to non-stimulated, potential interest, no linkage desire paths evolve that could facilitate the way for others. As with the “lubricating oil“ of networks, facilitation appears much less in quantity then these available at the sub-national domestic level. Indeed, on a domestic level, network organisations facilitate "coincidental" overlaps between entrepreneurial actors.

> An example of this is the obligator membership of the German chamber of commerce (IHK) for certain firms in a certain area. Although also being criticised by (obligatory) members, it certainly pre-defines the geographical scope of (free-of-charge) networking events. This is for both, the mutual entrepreneurial interfaces as for the contact with state authorities on lower or higher administrative tiers (Kreis-, federal state, etc.).

Greater illustration of the overall phenomenon can be found in the following paragraphs and is explicitly addressed on the chapter on "borderedness". Crucially at this point, networking connectivity activities such as by the chambers of commerce, appear to be less prominent as facilitation efforts. They are, therefore, less visible, despite being of much greater volume (and impact) than the more outspoken initiatives in cross-border networking. In one sentence, since networking efforts appear to be much higher on a domestic level, higher network-connectivity should not come as a surprise. Definitively therefore, mere cultural differences do not suffice to explain the less vivid communication ecology across state borders.

On the base of this preliminary insights of mapping and qualifying the mapped results in the light of the conceptual dichotomy, two major and special characteristics of the cross-border linkages can be elaborated in more detail. While a bilateral "talking with"

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visibly, received an entrepreneurship award), but to move to Münster instead. Although no metaphorical path of permanent interdependencies has been paved, Enschede being a realistic option, shows how the transnational dimension is present for actors and might, in some cases, even manifest in a locational solidification.

on the lower rates of the interface measuring tape is not exceptional, a multilateral “talking with, about someone“ as a characteristics of the higher rates is largely missing in the apparent solidifications of Buzz. Not only does cross-border communication suffer from a widely "latent" invisibility, it also appears structurally disadvantaged compared to "latent" and less outspoken domestic networking, which in part even comes in consequence of firm's obligations (e.g. membership in the chambers of commerce) These intermediate aspects serve to translate the findings of bilateral linkages in the field to the targeted collective level of multilateral Buzz.

11.3.2. Trilateral linkages

Intervening opportunities are not only a threshold between actors but can also deliberately be sought to facilitate interfaces. This is as important across the border as it is at the domestic level. While not always sustainable in linking actors, for the Buzz across the state border, the facilitators have a crucial contribution in creating a somewhat permeability in the communication ecology of the two neighbouring networks. Due to personal interviews and the positively intervening opportunities of key actors in the cross-border field, a limited communication ecology among the intermediating centre of the trilateral linkage does appear. As stated in the methodology, they are identified through overlaps that provoke “coincidences”.

> On my question to name addressable representatives in their domestic or the neighbouring cross-border region, most interview partners spontaneously enumerated a broad portfolio of intermediating actors. They were usually perceived as a gate-opener in the neighbouring Entrepreneurial Ecosystem, being well connected to both systems. This is for both, publicly and deliberate facilitators such as private ones. The main facilitators named are, to a large extent, represented in this research through interviews or events they initiated or contributed to.[88]

[88] The Euregio and the (public) municipal employees Peter Schildkamp and Elise Radema (Enschede) seem to be the most intuitive partners for actors in both Twente and the Westmünsterland to build bridges to the respective other (among others Marco Strijks, Ingo Hoff). Ingo Hoff has "great hopes" when addressing the FC Twente (initially known through the contact of the Volksbank Ahaus-Gronau), Novel T and the Universities UT and Saxion, regarding doing business in The Netherlands (28:00 Ingo Hoff 20-06-2017). In Germany, this is with “DNL Business and the Euregio“, while the domestic network AIW that he chairs does not seem to be too strongly involved in that.

> Exemplarily, Ulrike Wegener from the Westmünsterland both illustrates and embodies positively intervening opportunities. She has various intuitive partners in The Netherlands, among which are the ROC higher education, the chamber of commerce and the Euregio (1:00:30, Ulrike Wegener WFG interview). Specifically asked for contacts from Germany that reach in The Netherlands, she furthermore reports a colleague at the Kreishandwerkerschaft institution that was involved in legal aspects of cross-border-cooperation for some time.

Due to this, it appears, that certain transnational linkages and possible intervening cross-border "brokers" at least have limited collective visibility on the domestic level. In many cases, facilitation of contacts indeed has been relevant for some transnational contacts to come into existence, through "latendness" being made visible or activated. It is in that way the domestic dimension is important for transnational connectivity.

> More explicitly visible, in the case of Münsterland e.V. in regular[89] meeting through the IPRO Interreg program, very detailed orienting knowledge (they are of the WFGs, sit at the Airport etc.) on actors is over-spilt (26:00, Pieter Dillingh Interview).

Similar programs are actively used for multipliers of the ecosystem such as Pieter Dillingh´s NovelT agency, to show possibilities of cross-border co-operations[90]. Although this increases their visibility, it also reifies that these are not the “normality”.

Through a relative variety of positive, trilaterally intervening opportunities across the border, a particular quality of the relations among the two Entrepreneurial Ecosystems in Twente and the Northern Kreis Borken (Westmünsterland). As a manifoldness and density of contacts have been defined before as crucial for a Buzz, this manifoldness concerning possible first stepping stones can at least limitedly be depicted on the empirical grounds of the indicator “coincidences“.

> One illustration, therefore, is the way that Egbert van Hatten came to prefer Münster over other places to pursue a science-shop there (10:20). It appeared as a logical choice due to the proximity and numerous contacts and referencing of especially his boss at that time (9:00, 9:50). Indirectly, it was further supported

[89] = gereegelte.

[90] "Programs like Interreg as a tool can be used to let the firms have a try of the possibilities for a very protected [no interdependence] explorative start to see what can be possible in Germany" (28:30 - 30:00, Pieter Dillingh Interview).

by contacts in Münster with a latent cross-border potential such as due to Dutch-speaking employees and with many [1] contacts at the UT[91].

The manifold coincidences that characterise a Buzz are based on actors with a broad interest in each other and at least occasional interdependencies. In contrast, some “coincidences“ across the border are based on a very deliberate effort to network two parties:

> As Pieter Dillingh (personal conversation) reports, the Wetenschapswinkel had facilitated contact between a start-up from Enschede and the municipal supplier Stadtwerke Gronau. However, as Benjamin Beloch reports (non-relatedly), this coincidence had been initiated by a visit from AIW network at Novel T agency, on the initiative of the Major from Enschede.

Although numerous contacts where involved in that and a pretty high effort to facilitate, the "coincidence" is still true in some regard. "Discovering a start-up that is interesting regarding energy efficiency" as in this case, would have less likely happened for an external network a lesser density of positively intervening, thus facilitating opportunities.

These tri- or multilateral linkages make the differentiation of the original confrontation of the Netherlands with Germany more refined. Namely, it allows for a limited permeability of borders through positively intervening opportunity as “transfer zones“ between the non-penetrated core of the domestic Buzzes. Due to the reasons given in the following paragraph, these transfer zones appear much more likely in a border-adjacent area. However, the sum of available facilitation across borders remains far below the more invisible facilitation on a domestic level. In a way, that questions the strict conceptual border line that was initially drawn in the model of Bathelt et al. (2004).

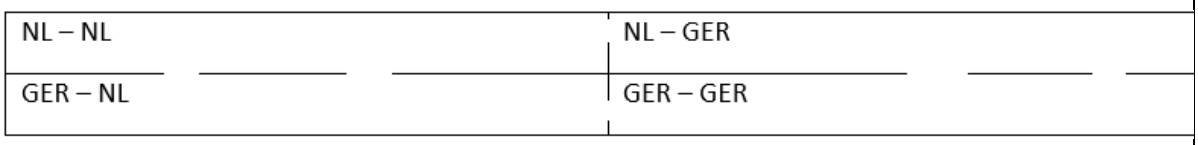

Figure 31: Sophisticated horizontal distinction, with facilitating intervening opportunities.

[91] Having contacts to different parties supposedly also enables actors a different kind of filtering relevant information through “natural triangulation“, so that managing and processing the incoming information is somehow delegated to the exterior as a governance mechanism (cf. own experience in doing this Buzz in the third sourcing document).

In cases of trilateral facilitation, linkages across the state border tend to crucially have a reification of connecting actors on a domestic level, adding to the limited Buzz across the state border. Interestingly within the respective “transit zone“, addressing the transnational “brokers“, also domestic connectivity is increased through their seemingly coincidental cross-pollination by the way, also among domestic actors.

11.4. Physical proximity and the buzzing framework of self-maintaining face-to-face contacts

Proximity seems to play a role as a positively moderating the access to (transitional) face-to-face contacts. It thereby also moderates the permeability of the communication ecology among the two main regional networks. Although it does not appear as an absolute precondition, the limited Buzz that appears across the border is geographically bound to the border-adjacent region under study. Compared to non-border adjacent areas, therefore, a relatively larger and denser web of linkages evolves. Similarly, as in other Dutch-German border-adjacent areas (Nauwelaers et al. 2013: 24-25), this relative density is a distinguishing characteristic of this CBA´s compared to non-border areas.

> To illustrate this, Marco Strijks names the advantage of border-proximity to "just sit in the car and go there [to Germany], enter some of the business centres or talk to people on the street".
>
> Very concretely for example, in the cross-border bus, entries in Enschede and Gronau were possible. For actors from the Dutch Glanerbrug, the sheer physical proximity by car or foot made them enter “on the German side”. Waiting for the bus, this means that they primarily integrated with the (mostly German) entrepreneurs and only secondarily got to know their “compatriots”.

Such effects of physical proximity, even if relevant rather exceptionally, are not possible for classical pipelines.

> Similarly, yet less explicitly, dimensions of a trans-border Local Buzz are also present for Ingo Hoff from Gronau. To him, crucially, Enschede is the foreign which is just "in the front garden"(18:20) at a very proximate (20:30, 30:20) two-beer-distance" (43:30). He stresses this proximity as an important factor for the

likeliness higher for success in partnering (indirectly based on personal trust, Ingo Hoff, Interview).

Physical proximity, however, certainly is neither a direct cause for a cross-border Buzz nor does it unambiguously indicate it. During this research, "obvious" or expectable Local Buzz was neglected, as in the case of the prominent establishment of a Fraunhofer and Max Planck Institute to the University of Twente. Firstly, in contrast to their relative cross-border prominence and visibility in (my access to the Twente Entrepreneurial Ecosystem), for the moment being, they turned out to be a Fraunhofer project centre (yet) and a physically absent Max Planck branch office. Secondly, for the existing Fraunhofer project centre, a clear strategic limitation to the Netherlands is present:

> "Visible on a national [Dutch] level […] It would be crazy to go to the Netherlands to work towards the German market from here".[92] Anyway, “there is not a lot“ in the direct CBA, which could additionally make use one of the 60 established institutes in Germany[93].

Although German and Dutch actors in that way are linked by a common Buzz, the local scale of connecting Twente with its German “hinterland” is not stated present in this example Indirectly, however, the regional scale and physical proximity play a role also in this linkage of [6] business success.

> Although with a weekly commuting distance of 230 km from Enschede (NL) to Aachen (GER), the presence of Maurice Herben at the institute itself can be reasoned from the close proximity of his town of origin Heerlen (NL) to Aachen (GER). It is at the same time supported by the UT acting in an environment that generally has fertile ground to contacts to Germany, and especially with the geographically nearby Münster(land).

To further grasp the role of proximity, the analysis of a cross-border Buzz among Twente and the Westmünsterland should ideally always consider the wider regional scale (as in the example with the impactful relation of Aachen and Heerlen).

[92] = “Het zou gek zijn om naar Nederland te gaan om van hier de Duitse Markt te benaderen“.
[93] With an exception stated to get active for a German firm, on facilitation of the Euregio.

> In the case of Twente, this would also include the nearby Achterhoek region (52:00, Egbert van Hatten Interview). It is a border adjacent (inter-municipally constituted) area with manifold cross-border-solidification and entrepreneurial connectivity with other parts of the Westmünsterland Kreis Borken[94].

This might – indirectly – contribute to further permeability between the distinctive communication ecologies and thereby also stimulate inter-regional domestic entrepreneurial interfaces

Addressing proximity illustrates both, a typical Buzz dimension of contacting each other at low transaction costs and the dynamic that digitalisation brings into the network as a crucial technological change with a space-time shrinking effect.[95] The importance of proximity displayed by these actors underpins, how in this context the limited Buzz across the state border is necessarily to be understood as "local[ly anchored]". So far, as somewhat frequently depictable on the bilateral and trilateral geographically close level. However, it is worth remembering, that these transnational linkages appeared as an exception in the collective and visible dimension. The overall finding that the state border strongly correlates with network borderedness even in cases of geographical proximity is therefore not in question.

> Exemplarily, Marco Strijks (11:00) is illustrative in summarising his networks very illustratively on the facilitating map with: "This whole area [especially in Twente, yet all over the Netherlands] is part of it, but in Germany, [my network connectivity] is much too limited".

His account displays a bordered dimension. Although more gradually as will be shown, this bordered dimension is also existent for the networks of other actors such as Ingo Hoff, Pieter Dillingh and Egbert van Hatten which are discussed in the following chapter.

.

[95] Increasingly flexible, multi actant dynamics leading to post-Fordism (Dicken, Chapter 4), although the technological change is present on both domestic sides, the approach was typically bordered to the regional sub-dimension, going beyond pure proximity in geographical terms and rather emphasizing the common ground both actors stand on.

11.5. Conclusion: Nuancing the reach of self-maintaining linkages

This chapter allows to conclude a specific permeability of the border in the area under study. In the illustrative model, this is expressed through a few arrows across the demarcation and complemented by additional linkages on the domestic level.

While in the previous adaptation, the regional scale remained questionable, proximity now is confirmed in its role for the maintenance of linkages. Derived thereof can be a limited transnational Buzz based on and with consequence for internal linkages of facilitation.

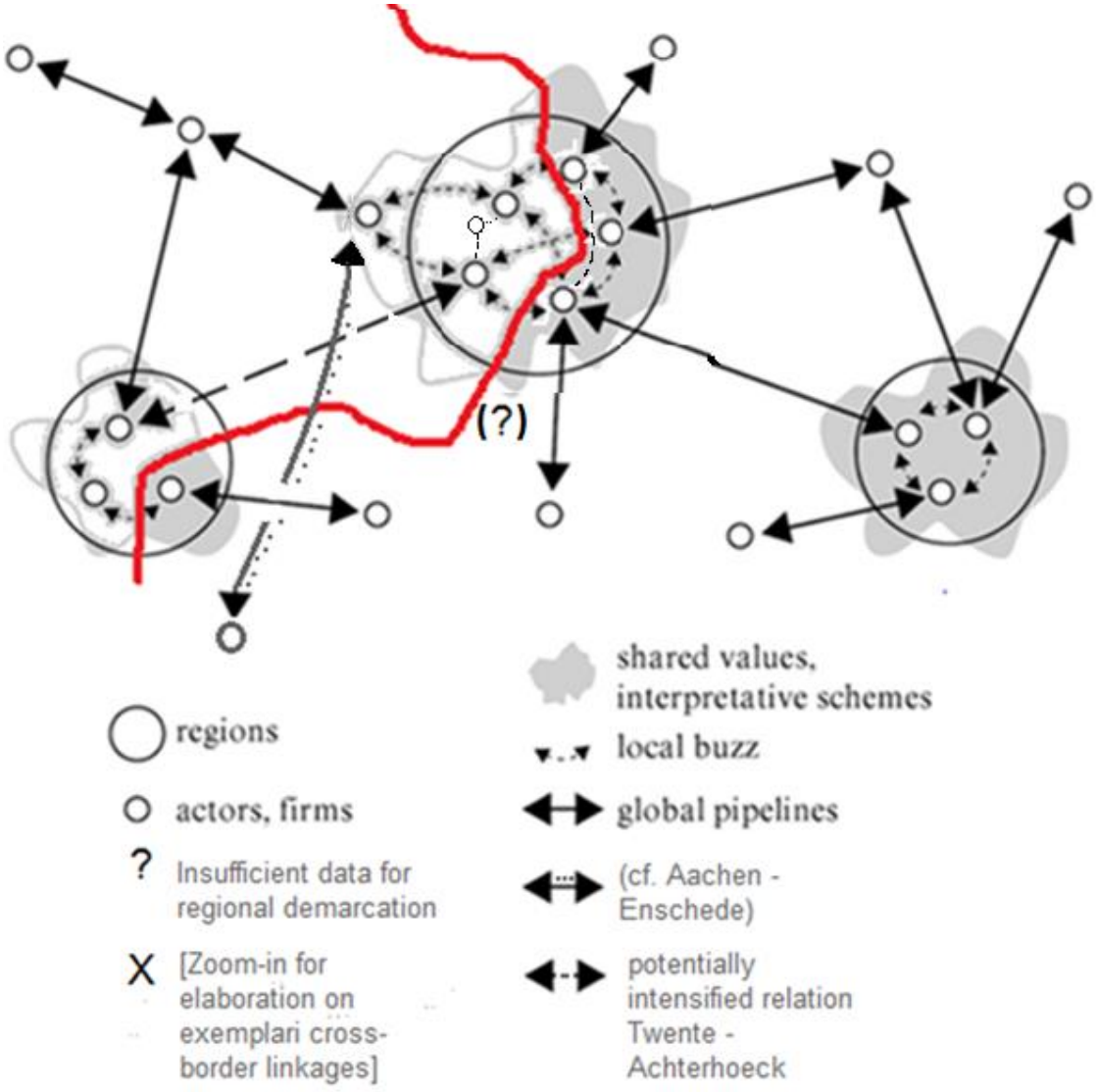

Figure 32: Moderating effect of framework and physical proximity in the model of Local Buzz and Global Pipelines.

11.6. Exemplary transnational network

The general mapping aimed at giving a saturating view on the demarcated research field. Zooming into a part of this overview, the following following provides a comprehensive illustration. In a descriptive and subsequent analytical part, the following induces the conceptual categories into a specific network of economic actors in the research field. It thereby also serves to test previously identified patterns on their applicability and generalisability. To skip this elaboration and to proceed with the main line of argumentation, please proceed on page 121.

As the most illustrative part of the Entrepreneurial Ecosystem in the CBA under study, the network around the entrepreneurial “Gründerstein“-award is chosen. Centrally, it includes the award´s organisation team and, therein, one of the CBA´s most prominent cross-border actor, Ingo Hoff.

Elaborating on a network of actors that displayed a relatively solidified cross-border activity, the following exemplifies the previously mentioned “transition zone“, among the respective core Buzzes. According to the saturation criteria, regional actors are chosen who experienced "coincidences" across the state border or where repeatedly mentioned by different independent actors.

> The Gründerstein award, thereby, is an example of a solidified network of innovative entrepreneurs in the (cross-border) region (cf. OECD 2013, 3.17. on awards), leading to "greater awareness and identity". It addresses the sparsely existent and even less visible but start-up and co-working landscape in the wider area of the Northern Kreis Borken (in contrast to Münster, cf. WTG Gronau interview). Within their Entrepreneurial Ecosystem, the award´s organisation team addressed the "multipliers" Regional Development Offices (WFGs) and Banks, that both know for founders/starters (8:40; 10:10 Ingo Hoff 20-06-2017)[96] and are in line with the network and financing (cf. Stam´s (2015) systemic conditions).

The interconnections of these actors with the region (as, e.g. for the municipal WFG Gronau enumerating some of them Benjamin Beloch, Whiskey and Cigar Salon as the

[96] Although not all are reached, some need capital only later and did not have contacts with banks, some have a mentor (And also Universities (it is for students, but not exclusively Ingo Hoff 20-06-2017, cf. saturation).

sponsors of Gründerstein award) is visibly among the leading actors in the (sparse) start-up scene (another remarkable actor is the natural scientist “Nanobaby“). The stated goal is to address a gap and bring young firms with an innovative "esprit" together with more established firms (6:50 Ingo Hoff 20-06-2017). Interdependence of the network on its participant is present in this case, by letting the starters profit from their network and having the side effect of own cooperation possibilities and an own positive image from this (3:10, ibid).

The area for which this effect of the Gründerstein Award is sought, deliberately includes the CBA of the Westmünsterland, (Kreis) Grafschaft Bentheim and Twente. This somehow reifies the earlier notion, that permeability and viability of communication ecologies appears higher in geographical proximity.

The concrete linkages displayed form a (trilateral) transition zone that crosses from and permits for limited permeability between the (West-)münsterland to the Twente Entrepreneurial Ecosystem that is briefly sketched and then described in detail. If in doubt, more details about how to read the map are to be found in the footnote:[97]

[97] For greater clarity and with the criteria of the interface model (Van Houtum 1998), it displays only contacts with frequent [3] interaction. The figure illustrates the relations just mentioned, indicating with an arrow which the original direction of knowledge overspill was, in case that this is clearly to define (e.g. mentor [5] relation).
Obviously, the figure displayed here, with the focus on the central actors from my research, is only a fragment of the networks that are at the base of the empirical findings in this thesis but chosen exemplarily since including many crucial cross-border actors. The red squares are added to show the initial facilitation of my internship organisation "Kennispunt Twente" as the "governance mechanism" during this research.
The actors displayed here are not put into hierarchy due to their (in-)formal role or function within the network. However, these that I had personal conversation with that extended watching their presentation, are mentioned in CAPITAL LETTERS. Three of these (in frames) are especially noteworthy, since they were among the very first contacts in the research field: Peter Schildkamp, NovelT and the TobitCampusTage.

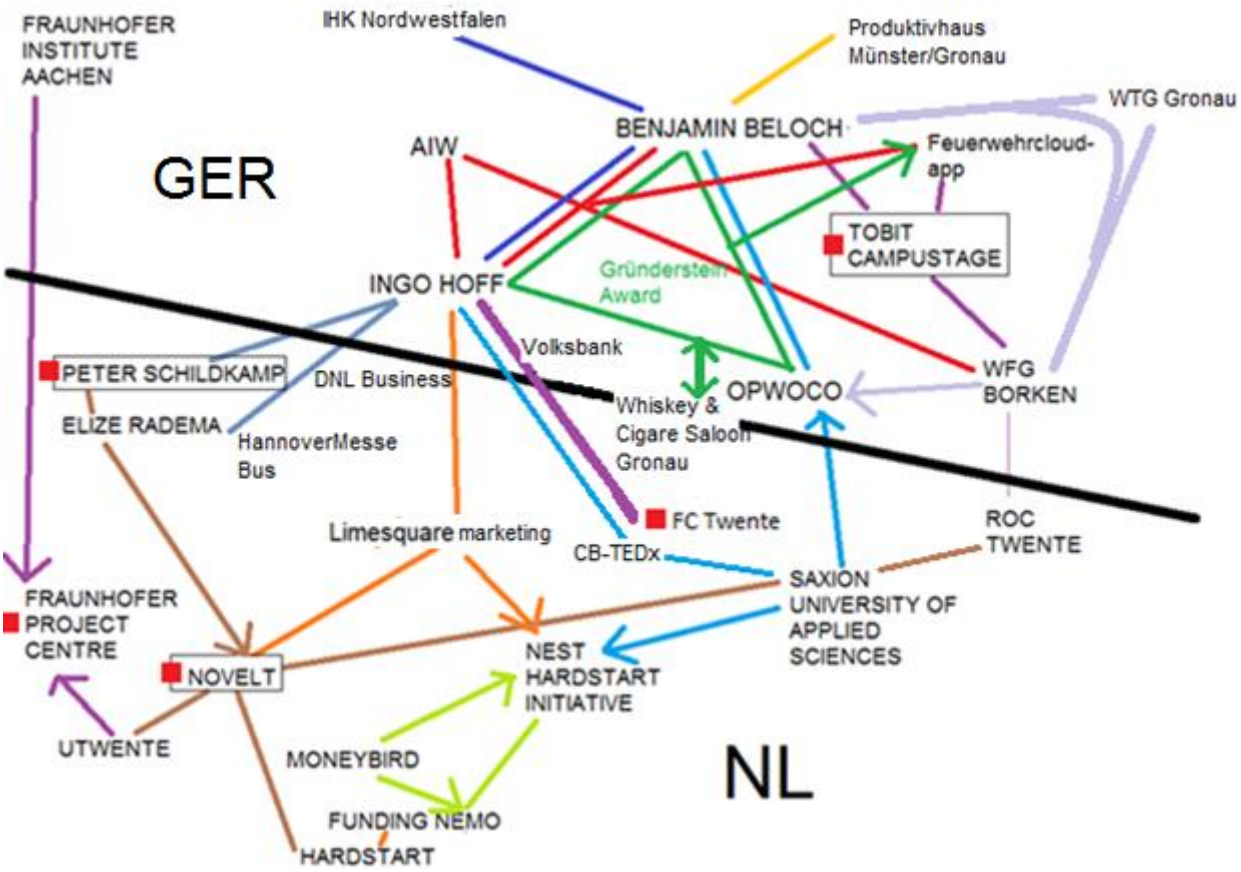

Figure 33: Zoom in on a part of the regional (transnational) network.

The zoom-in illustrates processes of networking, knowledge-overspills and especially the notion of "coincidences" in a comprehensive exemplarily way. Compared to the saturated mapping of the field, it displays the reach (and borderedness) of networks in a concrete case and can help to discuss its borderedness. Going in depth, it validates the conclusions displayed before and contributes to their understanding in a practical light.

11.6.1. Transnational linkages of actors in the network

Within the transition zone illustrated, concrete actors display:

1) a domestic communication ecology of mutually aware key actors (a)-c) in the following).
2) a cross-border communication ecology (a)-d) in the following), with one actor e) being indirectly connected across the state border with Germany from at least two angles, even without a deliberate network activity or conscious acknowledgment.

How these lead to a relatively dense network that provides for possible "coincidences" in the following is exemplified with describing five of the fragment's (leading[98]) actors in more detail.

a) Ingo Hoff (part of Gründerstein) -Visible cross-border actor. In the transnational context, especially Ingo Hoff strikes out. Being sub-nationally connected to the organizational team of Gründerstein with Opwoco, Benjamin Beloch among others, he is also the vice-president of the West-Münsterland business network AIW (non-sectoral).
   He is further known for his cross-border engagement (walking charity trip from the Anne-Frank-Street in Gronau to the Anne-Frank-Haus in Amsterdam).
   Another fact to underpin his explicit and actual cross-border orientation and –scope is him being a speaker at the cross-border TEDx-event of Saxion (after the closure of this research).
   In Twente, especially his active role in the skybox of the football club FC Twente has been prominently regarded, from both my research Buzz as other actors, mentioning it from own initiative (Edwin van der Wiel, Peter Schildkamp o.a.), is connected to the municipality and had marketing support from Limessquare in Enschede. He is an integrated actor in both networks that also different other actors refer to independently from each other.
   In that way, Ingo Hoff is also among the organisational team for the deliberately border-crossing Gründerstein award for young entrepreneurship. For marketing

[98] Cf. Stam's (2015) systemic condition of Leadership.

and sponsoring as another dimension of Buzz, Ingo Hoff reports both Enschede and Gronau as areas of interest (40:30 ff) and mentions social events as the and Jazzfest similarly as the Dutch Haringsparty where he can also meet Westmünsterland-embedded actors (about 10% of the guests).

Cross-border engagement has a complementary appeal to him, stating that the sporting/networking event Horse-riding Boekelo was worth a visit especially "because it is on the other side" (26:00, Ingo Hoff 20-06-2017)

b) Benjamin Beloch (part of Gründerstein) - Young facilitator/networker. He is part of the organisational team of Gründerstein and played an integrating role for Ingo Hoff at the IHK Nordrhein-Westfalen, where he received initial mentoring. Active in stimulating young business in the frameworks of the AIW, he is furthermore known as a possible of co-working spaces (through his past in Produktivhaus Münster) for the WFG Gronau, about whose activities he is well informed himself. I got to know him at the Tobit.CampusTage, where he was one of the speakers. As a former student of the Saxion Bachelor in retail and small business management (formerly offered in both, Enschede and Gronau), he is the closest link for Gründerstein to this institution.

c) Ulrike Wegener - Established networker in the super-regional field has principal responsibility for starters in the Westmünsterland at the WFG for the Kreis Borken (but in Ahaus). These are, amongst others, a marketing partner of the Tobit.CampusTage. She knows all the actors mentioned in this research in the (West-)münsterland and their detailed backgrounds. Furthermore, she is a front networker that was present at the AIW Fresh Business (together with Ingo Hoff and Benjamin Beloch) breakfast. She moreover inherits several leading and initiating roles, e.g. as moderator of the founder´s network Gründungsnetzwerk (7:10, Ulrike Wegener WFG interview cf. networking paragraph) and for a coaching weekend of the WFGs of the Münsterland and Ruhr area. In Twente, she participated in connection with the ROC Twente facilitated by the Euregio, to which she also gave a presentation.

d) Pieter Dillingh - Authority on innovative regional development with a cross-border affiliation. The transfer agency NovelT, with associated Egbert van Hatten are structurally interwoven with their shareholders University Twente, Saxion University of Applied Sciences, and the territorial entities of Province of

Overijssel and Enschede municipality. Crucially, he organised most of the events that were visited in Twente for this research. Cross-border, they have [1] contacts and joint projects with the University of Münster (facilitating Egberts van Hatten's pioneering for the science shop Wetenschapswinkel) and various other connections, also being one of four major partners for the grand Interreg programmes.

e) Nesst-Hardstart - young entrepreneurial club with many actors that can be defined as ecosystem-based pre-Gazelles. On a smaller level and more among the (pre-)starters in Twente, the initiative is a place to share and develop business ideas originating from Saxion University[99]. The mentorship, as turned out on the UT event of Funding Nemo (Hardstart), is, among others, from the accountancy software Moneybird (the "natural peer" of the software firms in the Westmünsterland). In 2017, also one student from Germany was visible part of the initiative. However, after our informal interview, she is to be considered part of the Twente-Buzz and does not add an additional connectivity to the proximate cross-border network.

f) The marketing agency Limessquare is of especial interest within that. As a major mentoring presenter during one of the Hardstart sessions, it mentions its role in the (re-)branding of the NovelT development agency. Furthermore, Ingo Hoff states their role in shaping his company's visibility. This indirect connection of two major actors on both sides of the border is very illustrative in showing, how service providers such as the marketing agency Limesquare can also have cross-pollinated effects.

The in-depth overview of this nodes and their interplay shows that borderedness of networks is not absolute and allows for networks -as the one displayed here- to have connections on multiple paths. Due to the relative density, coincidences do occur, and maintenance of the linkages partly takes care of itself. This happens e.g. through "talking with about" and referring to one another, maintaining an automatic dynamic. The different extent of bilateral and multilateral, observable linkages can be conceptually consolidated through semi-public visibility of transnational linkages for the

[99] of Applied Sciences

actors involved and an indirect cross-border scope of actors such as e) Nesst-Hardstart without necessary explicit awareness.

To give a more feasible and detailed image of these actor´s perception of personal (and regional) networks, the following mind-maps are employed, evolving from the interviews:

Networks Exemplified on maps in the Course of the Interviews

a) Ingo Hoff:

Has a regional network that crosses the border but still appears moderated by the respective territorial (administrative) unit, decreasing from Westmünsterland Münsterland – Grafschaft Bentheim – Twente – other parts (cf. (7:30) Ingo Hoff 20-06-2017).

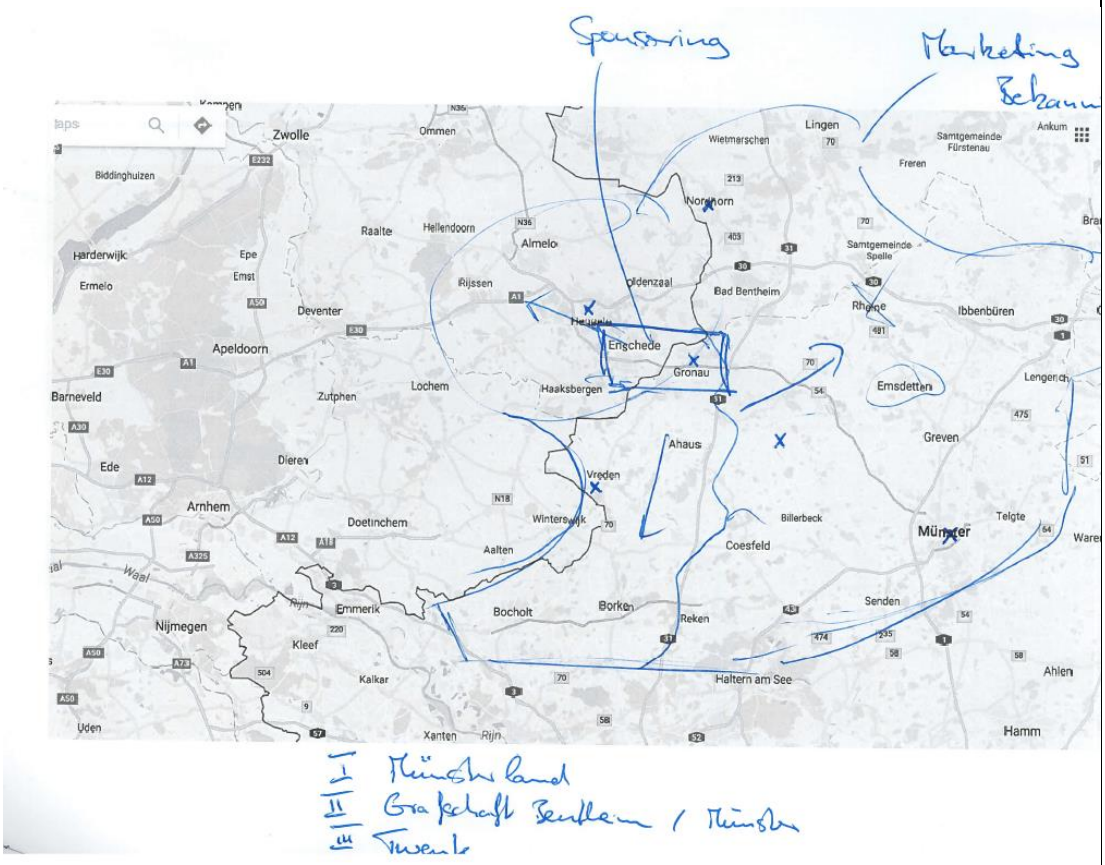

Figure 34: Entrepreneurial network-scope "Hoff & Partner" (Interview Ingo Hoff).

“Here in Gronau we do not have that exclusive university-focus“. Concretely these are: UT/Saxion, Lingen, Bocholt, Steinfurt. And in there, concretely: Novel T, UT,

Saxion done by colleagues from the organizational team that studied there. (11:20) Ingo Hoff 20-06-2017.

Gossips include a smaller area only, maximum the reference one, very dependent on personal contacts at a given time (35:40) Ingo Hoff 20-06-2017 but also includes Twente. People know his firm mostly in a beeline of 40-50 km, especially in Gronau, Borken and the Westmünsterland, Münsterland, Grafschaft Benthmeim, and Münster, Twente (more than e.g. in the "domestic" German and NRW region of Bielefeld (48:20) Ingo Hoff 20-06-2017.

d1) Pieter Dillingh:

In order to make latent potentials visible, he was asked to point out actors that pitfalls of projects could be shared with beyond the scale of Twente (30:30 – 36:00, Pieter Dillingh Interview).

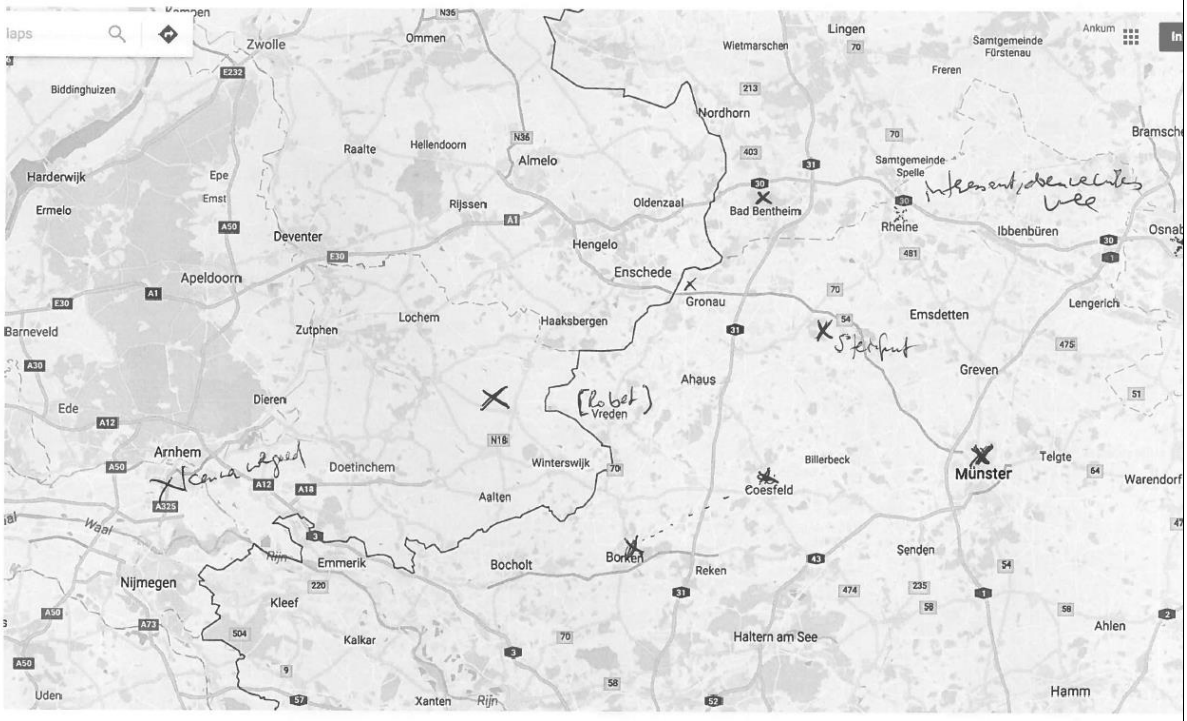

Figure 35: Range of main activities of "NovelT" outside the domestic region (Interview Pieter Dillingh).

d2) Egbert van Hatten:

The network in which he facilitates does include German areas only very exceptionally.

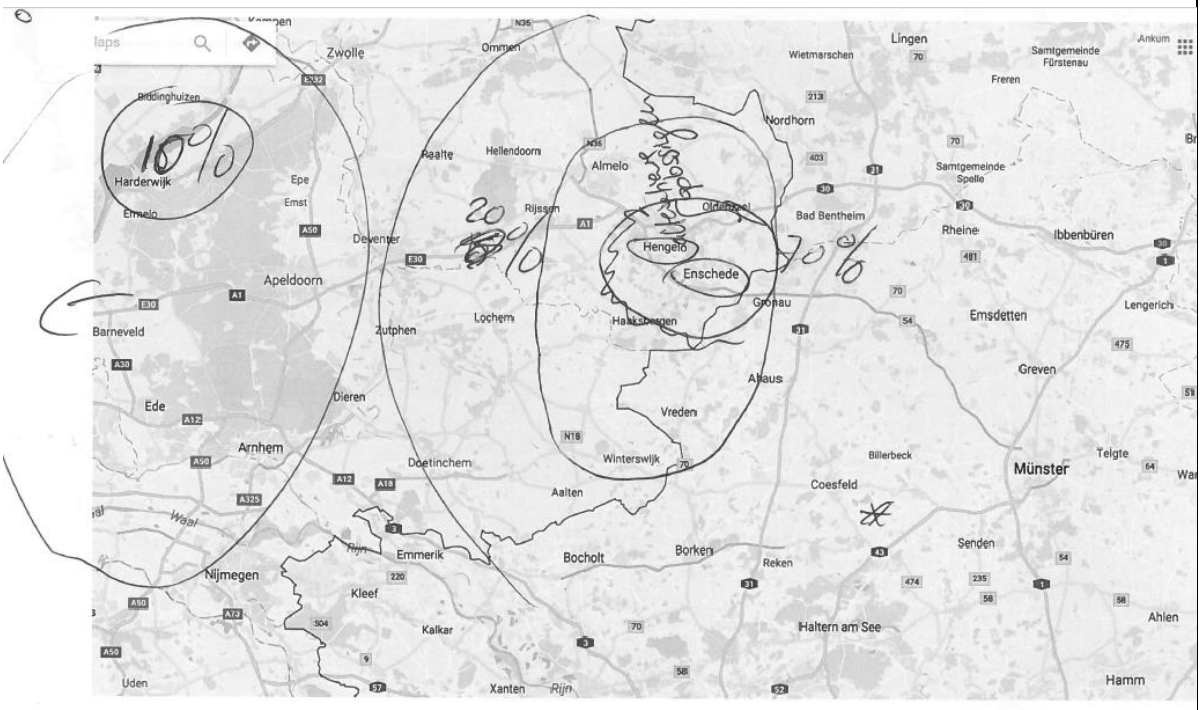

Figure 36: Regional Range of Activities of the lubricating "Wetenschapswinkel" at the University of Twente (Interview Egbert van Hatten).

About 70 % of all clients for the Science Shop come out (city-)Twente, another 15-20 % from the closer regions around up until the city of Winterswijk, Deventer and another 10% from the rest of the Netherlands (13:00, can be underpinned with data if wished). It can also be the starting point of a (student-)job (21:30, 35:40, Egbert van Hatten Interview). From Germany, this is very singular (but has happened, e.g. (German) company (with a location also in the Netherlands) looking for sustainability by smart materials (14:20, Egbert van Hatten Interview)).

10.6.1.1. Transnational “coincidences”

The existence of [1] contacts as such is not exceptional for the area under study. What is unique are the manifold overlaps and their density that enables not only a "talking with" but also a "talking about". Alike a Local Buzz, this facilitates both, "coincidences" and cohesion. But even for the five actors involved in this network with their comparably

strong cross-border orientation, overlaps are less in quantity compared to actors in the same (sub-)national level. The limited communication ecology, however, confirms the earlier preliminary statement, that various intermediary opportunities "Buzz" among themselves. The linkage-map is, therefore, to be understood as a magnifier on the cross-border ecology that is very sparse towards the adjacent area (cf. previous alterations of the model in figure 15b, 16b).

It is of special interest, how the Gründerstein Award organisation team in (as solidification and significant anchor of the Entrepreneurial Ecosystem in the Westmünsterland) is connected to NovelT agency as a declarative and functional centre of the Twente ecosystem (exemplified by Pieter Dillingh).

> An example is him [3] knowing the marketing agency "Limessquare" as a jury member of the Gründerstein Award through another contact (and had also done the new branding concept for NovelT, formerly Kennispark (presentation Limessquare at Nesst Hardstart)).

The multiple, positively intervening opportunities between the actor's development agency NovelT and the Gründerstein-award organisation team uncover perceived "coincidences" as a consequence of overlaps in a relatively dense, shared network.

> The manifoldness of Ingo Hoff's a) networking partners in Twente consists of significant contacts to entrepreneurial networks, the municipality (5:20), university and facilitators across the border. For all of these, he can summarise and contextualise the actors he mentions. The "coincidences" of finding partners and thereby divide labour more efficiently are also based on him being part of prominently regarded most active part of five entrepreneurs in the Skybox of FC Twente (2:50, Ingo Hoff 20-06-2017) that he uses for (deliberate) networking. That way, engaging in The Netherlands can unintendedly contribute to public recognition and an innovative image. An example for this is Ingo Hoff’s walking tour from the Anne-Frank-Street in Gronau to the Anne Frank House in Amsterdam, with media presence up to the federal state level (The NRW-based WDR television in Germany).

Due to the density of overlaps, in sum, the "coincidences" of efficient solutions at low transaction costs, are a Buzz-like example of transnational linkages. This partly allows for a relatively coherent orienting knowledge in the CBA ("getting the whole picture",

1:22:00, Marco Strijks (Saxion University of Applied Sciences) Interview)[100], in contrast to the poor overall orientation.

It is considerable, that bi- or triliteral linkages across borders[101] with some quality of Buzz can evolve in a very specific web of cross-border linkages. It is noteworthy, that the transnationally permeable web that was displayed in this chapter goes beyond bilateral, cross-national "talking with" each other, but also reaches a feasible dimension of commonly "*talking about*". Due to the relative density of cross-border involvement in many cases of core-events, there is a chance to also reveal multiple latent, transnational dynamics across the state border.

11.7. Conclusion: Scope of an exemplary transnational network

The exceptional, relative density of active and interested actors shows, that the border as such is not insurmountable. A "coincidental", "automatic" circulation within the web of untraded interdependencies circulated" can be reached through numerous possible intervening opportunities / facilitating actors and their mutual connectivity. This is even despite of them being in a different framework and overcoming bilateral transaction costs that are rather characteristic for Glocal Pipelines. Through the great variety of positively intervening opportunities between actors and the positive role of physical proximity, the overlaps of some of these pipelines, yet, reach a density critical for an efficient governance mechanism. In its functionality, this helps to qualify as a (limited) Buzz with a degree of automatic maintenance.

Due to this relative density, the present aspects of Local Buzz across the state border appear difficult to duplicate[102] and are, therefore, competitively "sticky" to the actual CBA, respectively to its border adjoining regions.

Through zooming in on a solid network of people, furthermore all previous dimensions that the general and detailed overview displayed could be deductively checked and translated to a real field. It could be re-affirmed and qualified, how

[100] Strijks tells about a garden-cluster around Emsdetten (including swimming-pools, furniture, 1:19:00, based on visiting Dutch entrepreneurs there with his study-classes and through excursions in this area).
[101] As a result of complex linkages which on their demand some maintenance efforts.
[102] This is among others in a temporary Buzz (cf. Bathelt 2006).

Linkages across the state border have characteristics of a limited Buzz, evolving along with Global Pipelines**.** Within the guiding model, it shows, that "arrows" of Local Buzz across the border do indeed occur, leading to a permeability within the cross-border communication ecology:

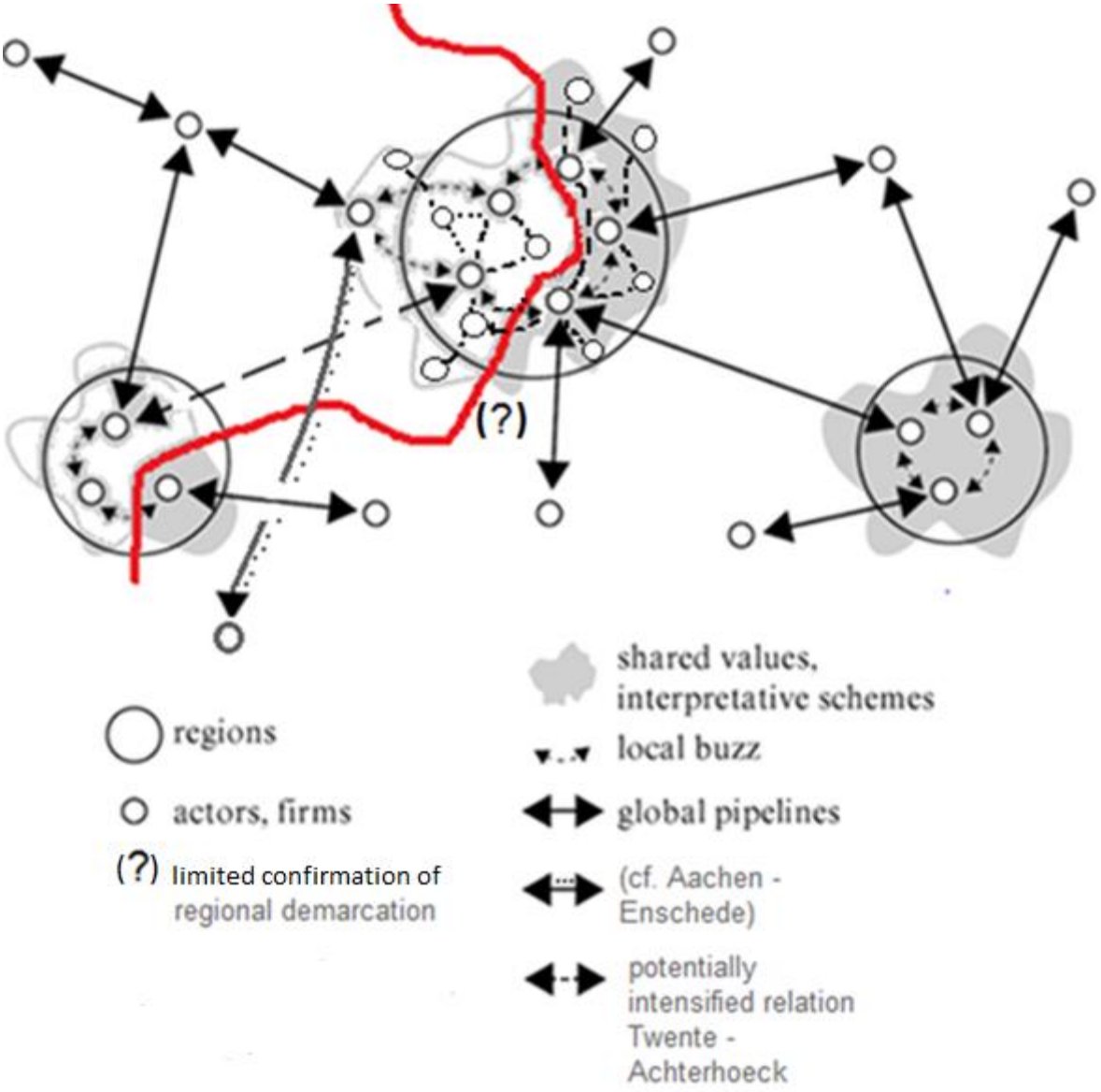

Figure 37: Local Buzz, local transnational permeability in the model of Local Buzz and Global Pipelines. It re-affirms the regional scope and displays how (increased) domestic linkages can function as transit zones across the border (based on Bathelt et al. 2004).

12. Theoretical category INTERDEPENDENCES: Analysis of scope and limitations of financial investment relations

As previously defined, Stam's (2015) condition of Finance, in the light of Bathelt et al. (2004) can be regarded as an interdependence that underlies (the channelling of) knowledge-spill overs and thus externalities. The previous chapter showed that limited linkages across the border exist and can create a communication network of "coincidences". The effect is an at least limitedly porous national border in the CBA´s communication ecology. Addressing underlying interdependencies of financing, the following analyses the origin of linkages, from [1] a mutual interest that can develop to a [5+] feasible interdependence.

Being one of the building stones of the Entrepreneurial Ecosystem of Stam, especially for (tech-)start-ups gazelles, investors are essential actors and a very effective example of a vertical linkage that facilitates vertical and horizontal connectivity in the Buzz. Firstly, it shows, how interdependencies in financial capital facilitate overspill of "smart capital" in the form of knowledge-overspills and increased connectivity in the research field. Secondly, it displays, in which regard these important pre-conditions have a strong national dimension, which disqualifies the CBA under study as a common region in terms of entrepreneurial finance – and Buzz.

> The importance of financial actors for the research field was confirmed in the empirical evidence. To reach start-ups for the Gründerstein-Award, Ingo Hoff reports that banks have been approached as one of two critical multipliers (Ingo Hoff 20-06-2017).
>
> With even greater stress, Bahruz Mammadov, co-founder of the tech-start-up Eurekite (intelligent ceramics) from Azerbaijani origin, mentions their America-based investor Cottonwood (the second out of three) as crucially supporting them with non-financial, so-called "smart" capital. These include networks to CEO´s and coaching (based on business experiences, mergers and takeovers 3:10).

In fact, the interdependence of financial donors and grantees accelerates different forms of smart capital. These are manifest in knowledge overspills trough (top-down

initiated), vertical and horizontal networking and the signalling of possible difficulties and pitfalls[103] that re-affirm the connection of financial and smart capital. Empirically, this has been observed in numerous examples. In the light of the research question and hypotheses, however, it is crucial to keep in mind, that this large functionality of financial interdependences is implicitly bordered to the domestic (national) level[104]:

> As framed by a representative of the development agency Oost NV, "for sure if we hold equities […] our interests are principally the same". This also includes, that investors have an interest in the investees self-interest and motivation ("Making them accept conditions with only 10% equities for an investee is not attractive for investors. They do not have the motivation anymore to get it running", participant of Fund the Future event).
>
> Ulrike Wegener affirms the similar interest and points out the banks' thoroughness[105] due to their subsequent interdependence: "I, as the economic development agency WFG can tell that I believe that a business model will work out. But at the end of the day, it is not my money to be invested [and not me to bear the risk]. Therefore, when the bank gives the ok, I surely know that it had been checked on all kind of possibilities" (47:40).

This trust in the banks thoroughness on investee's situation can be seen in the light of their interdependence, strongly associating the investor's bilateral interest with the business success of its investee. On a collective level, this contributes to a web of interdependences that are identifiable through their stimulation of knowledge externalities.

[103] = valkuilen.
[104] When clarifying what actors underly the statements that have been made, it became obvious that they did not cross the state border. This distinction was not to explicit, but due to an implicit borderedness that expresses itself in repeated statements of the type of "we are in contact with partners in all over Germany".
[105] = Gründlichkeit

12.1. Knowledge-overspills within financial interdependences

As a concrete case of knowledge overspill within the investor-investee interdependence, knowledge externalities include orienting knowledge in the economic field and collaborative learning. The knowledge externalities in the financial interdependences are identifiable as deliberate networking. Beyond this, they were reported by actors in various events and interviews - identified in the mutual signalling and identification of possible pitfalls and cross-pollination “on the way“. The investors in the research field appear highly aware of their interdependence with their investee’s knowledge.

> Exemplarily is a bank representative who has various contacts within the same sector ("a small world that you understand after one, two years of being involved") and knows about "who [he] can bring together" (Fund the future: Hans van den Boom Rabobank).

In the high-risk networks managed by ABN AMRO, an entrepreneurial background is crucial to signal difficulties and prevent them –and ultimately the investor’s money- to trap into them.[106] The added value of an entrepreneurial background has also been reported from a low risk investor, where the regional bank Kreissparkasse Steinfurt (private conversation after the workshop) can warn of difficulties in the sector due to the knowledge gained from previous failures.[107]

> The financial networker Hofmeijer, Gerard mentions, that he accepts only entrepreneurs as clients since he is interested in acquiring their knowledge to foresee difficulties and pitfalls in the future more easily. Precisely, these include start-ups, scale-ups, but also Small- and medium-sized firms (SME's) that "are with their back to the wall".
>
> More deliberately, an additional frequent form of externality is the networking effect that investors reach among their investees[108] through sharing from a

[106] = “Voor ons is ook belangrijk, dat onze investerders meer bieden dan geld, kennis en ervaring inbrengen. Wij hebben daarom ook een voorkeur voor een ondernemersachtergrond […] kunnen voor pitfalls behoeden. Het is wel een andere rol“. (ABN Amro).
[107] = Firmenkundensanierung.
[108] From the opposite angle, the fact of circulating knowledge also became clear through the fear of its negative effects: Trough the system of some banks as a filter for investment banks in North Rhine-Westphalia, one participant of the Kreissparkasse (KSK) workshop expressed the fear that her idea

common knowledge pool. Therefore, beyond lending money, "match-making" is what some networking banks define as their characteristic (e.g. ABN AMRO).

With these cumulative externalities of match-making and preventing from possible pitfalls, the investor-investee relationship “smartly“ proceeds beyond the [5] strict financial linkage. Knowledge overspills in the framework of this interdependence are referred to as "Smart capital". It can be understood as a combination of social/relational, but also academic capital[109], reaching from very close and support-giving to a more controlling contact) that prepare to ideally "building on the investor's network and capabilities" (5:00, Bahruz Mammadov Interview).

12.1.1. Financial interdependencies as a stepping stone

Investors are not only a crucial source of knowledge overspills within the internal interdependence with the investee but, also a stepping stone. On a collective level, they fulfil an indirect role as a filtering and “certifying“ reference for other actors in the investor’s network. This is crucial and gives the financial linkage the possible dimension as an [7] externally visible interdependence. The certification by more established actors is important especially for fresh start-ups, classically without a sales history and no directly comparable products on the markets that could serve as a reference.

> As among others, Ulrike Wegener confirms, an investor’s overspill of social and financial capital “is a strong positive indicator that it will be successful“, implying, that the underlying business model has been checked on every single questionability (46:50). [110] [111]

might pollinate too many people that would deal with her case (which is regulated, of course, through a deliberate permission and the bank secrets).

[109] The reflection about the needs for smart capital, the “smart needs“, have been referred to as crucial preparation for every starter, as are the additional relationship goals should be defined. Examples from the event “Fund the Future“, these should include (often seemingly secondary) questions such as:
“What expertise do you need from your investor?“ and
“What kind of network do you need, or do you have one yourself?"

[110] = auf Herz und Magen geprüft.

[111] As Ulrike Wegener describes, also a material investment relationship, such as building a whole new campus is a kind of advanced interdependence with the region as the investee and targeted audience. To the targeted audience, this investment capacity can furthermore indicate business success and let the investor appear a possible solid partner ([6] in the interface model, in this case in relation to the region as a whole (Ulrike Wegener).

Through these simplistic, certifying knowledge overspills, investors help actors from the same network to orientate themselves in the economic field and can facilitate their possible following-up engagement.

> If a "respected office stands behind" a business (idea) and is "thinks along" with the respective start-up, getting subsequent forms of capital is facilitated (PwC at NestHardstart). This is even for new forms of investments such as digital crowdfunding. Also here, initial (crowd-)funding signals towards potential investors, that the business (idea) already has "a network, and clients" that had to be successfully created in the first place (presentation at Nesst Hardstart) that helps to increase [7] financial or “smart“ commitment of the digital community.

In that way, financing and the linkages evolving out of it often appear path dependent, since "your earlier funders will pre-determine your later funders" (Oresundstartups 2015). Already with the first investor, the following up financing should be considered (High-Tech-Gründerfonds at HannoverMesse fair), which can multiply the importance of the initial connectivity in the Buzz. Be it through direct knowledge overspills or the facilitation of these. Therefore, investors can have a crucial mentoring function (confirmed in these words by Ingo Hoff 20-06-2017), directly for the investee’s activities and indirectly in encouraging other actors to engage with the investee.

In sum, the overspill of "smart capital" could be explored to underly network-connectivity on multiple levels, for risk capital as "ordinary" financial capital, but also with the increasing possibilities of internet-based crowdfunding.

12.2. National scope of financial interdependences and linkages

To elaborate on the possible network-scope, the question of a network-borderedness is to be answered. As stated at the beginning of this chapter, the domestic finiteness of the financial factor within the ecosystem has strong implications on the communication ecology across the state border. It has not been explicitly identified as a border but is implicit as a non-connectivity in numerous statements:

> A good example is the self-confident expression of ABN AMRO Enschede, advertising "having a network of about 650 firms from all over the Netherlands". On my subsequent question to this positivist statement, it was clarified, that indeed *only* firms in the Netherlands are in the network.

Not only verbally, but also in publications an implicit domestic focus is present. This is of crucial significance especially when these are from relevant regional actors that aim to facilitate a general orientation on possible investors, and thereby pre-define the evolution of subsequent connections.

> The report "Twente Financial Ecosystem" ([Erwin] Holtland (2016), for Kennispark Twente) is a good example. It shows a not exclusively, but very strong nationally delimited "Financial Ecosystem" for Twente, from pre-seed to mature development capital. Major actors report, how especially venture capital is nationally concentrated in national hubs, such as “in the [dominant Dutch agglomeration] Randstad“ (Keijs Eijkel personal conversation at the event Fund the future in Wageningen)[112].

Even more than private (market-driven) actors, nationally based infrastructure of financial institutions and the manifold (public and thereby also hierarchy-driven) granting structures are clearly demarcated along administrative borders. This goes along with the “soft” [0] orienting knowledge about the available grants that appear to “automatically” circulate within the vertical dimension of the respective Buzz.

> For example, the Twente-based Bahruz Mammadovs (Eurekite start-up) states, how he naturally knew about the “very popular" [national] ´STW Grant´, that even “nobody had to recommend” him (14:30, Bahruz Mammadov Interview).

[112] Public money in the Dutch research field, even more, "naturally" has a (sub-nationally) bordered dimension, “to be [found] more regional or even local, also some from the university“ (36:30, Pieter Dillingh Interview).

> This "natural" - yet very much nationally limited - knowledge resulted in 40 000 Euro of financial capital and smart capital such as crucial match-making with their main investor Cottonwood, 18:50, Bahruz Mammadov Interview)[113].

It confirms once again, how in many ways financial capital goes along with the externality of smart capital that can have the form of a stepping stone for further funding and connectivity. At the same time, it gives evidence on how this externality is thus largely absent without financial capital interdependences. This financial borderedness is largely administratively based or moderated, and solidifies in concrete institutional, geographically demarcated responsibilities.

> “With the business-plan, starting companies can go to the chambers of commerce [in their administrative region Nordwestfalen], that know the sector well and can lend three, four hours of their time for support” (Ulrike Wegener, Interview).

The hierarchic and restrictive duty to formally register in one of these chambers in an institutionalized way to facilitate knowledge-overspills (even before the financing process starts) on a nationally and sub-national level. Additionally, the presence of this implicit administratively moderated financial borderedness - and its implications on smart capital - is confirmed in the explicit effort to overcome it.

> As another example, the PwC consulting group (at Nesst Hardstart) is involved in an award with 5000 Euro financial capital and "most importantly" smart capital, including "the access to all experts and also the working spaces in the PwC network" that expanded from the Netherlands to include Germany and Austria.[114]

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[113] Another administratively moderated limits in terms of knowledge-overspills becomes evident for digital models, where at least for equities, no European jurisdictional framework has been coined (yet). Furthermore, problems in the generation of a network of clients with commitment can be expected, when it is about aspects like “tell a story, be authentic“, which might be more difficult when the framework is another one.
A problem for cooperation in both, digitally based and non-digitally based investments, is the different (speed of) developments varying from country to country. Comparing their numbers as homogenous blocks, for the digitally based sector with a nearly exponential growth (presentation Nesst Hardstart), Germany has a rather low dynamic (compared to e.g. the UK, hosting 80% of the all-European turnover) in absolute terms and Estonia in relative terms, but also) compared to the more dynamic market in the Netherlands.

[114] In contrast to this externality-enhancing approach, many financial tools within the Interreg programs (which have to fit the program´s goals) rather have been reported to "lower the threshold" (37:50, Pieter Dillingh Interview) of transaction costs.

> Also, the Twente actor Hofmeijer (at Nesst Hardstart) deliberately stresses the crucial role of an investor for accessing a foreign market concerning smart capital and strategic intelligence, advising to "always go for the smart money, [and to] think in networks. Logically, this "includes finding investors from Germany (facilitated by them), when this is the market to be addressed.[115]

Based on the assumption, that interdependences underly linkages, it is crucial to understand the interdependence-building effect of such measures and initiatives. Assumingly, the highest added value for a common communication ecology is reached when the internal and [7] external interdependence generated by an [5] investment relationship and the (unintended) cross-pollinating role and its assumed multiplier effect.[116]

Directly due to this overspill of smart capital, financial relationships can be regarded as strong linkages that crucially underly the communication ecology of Local Buzz in a bilaterally [6] interdependent and collective, [7] externally interdependent, way. Simultaneously, it has also become evident how the financing realities have a gradually bordered and even restricted dimension. Across borders, their “natural“ function as a stimulating cross-pollinator, therefore, is largely absent and lends solid ground to concludingly neglect the hypotheses of a fully-fledged “Glocal Buzz“ across the state border.

12.3. Conclusion: The cross-border scope of financial interdependences is very limited

The strong implicit borderedness of the interdependences of finance are the cause of various possible underlying reasons. In the absence of automatic enforcement of the communication ecology of Buzz, it has dramatically bordering effect and appears

[115] In our private conversation after the presentation, it appeared that for him, matching people from The Netherlands with German investors evokes the same prescriptions as to match them with American investors, for which he gave examples, and for which one needs personal trust.
[116] This has relevance e.g. for the Eindhoven-based "ELAt Business Angels" framework and its mayor orientation on either generating new interdependencies rather than “merely” reducing transaction costs.

strongest at the levels of the [4+] more intense interfaces. Actors in the research field build their –mostly vertical- complementary interdependencies nearly exclusively at the domestic level.

This does not surprise after the findings on borderedness shown so far. With regard to the social relevance of this thesis, however, it astonishes, how many network-margins remain at such close physical distance: This is especially given the apparent similarities e.g. in the digital sector across the borders and the great pressures that actors face in terms of global connectivity and gaining a competitive edge. It is at overcoming this very point of cross-border connectivity margins, that border-adjacent regions like Twente could enhance their "stickiness" compared to much larger hubs such as Amsterdam. . Although a few ambitious programs are present to address this difficulty for an agile CBA, the limitations for the cross-border scope of the Buzz are of a clear structural and assumingly indolent nature.

The analysis of these interdependences shows, how the scope of the respective buzzes qualitatively does not reach to the underlying interdependences that would automatically provoke knowledge spill-overs at the level of bilateral and multilateral entrepreneurial interfaces. Based on this and the missing quantity of linkages as mentioned, the scope of the networks remains crucially bordered along the strong administrative border. That does not mean, however, that Buzz across the border is totally absent. With the examples of a relative density of trilateral linkages, a limited direct common communication ecology of engaged cross-border actors could be identified. Also, indirectly for the majority of actors in the research field, this means a relatively higher permeability of two communication ecologies.

The pipelines across the border do extend the scope of the networks in so far, as it can increase domestic connectivity. Thereby, they indirectly contribute to lower transaction and – less prominently- opportunity costs for future cross-border linkages. Actors in the CBA limitedly are enabled to find their way to each other, establishing bilateral contacts and even common project-participation. However, there is a striking lack of especially the more collective notions of entrepreneurial interfaces: On the level of low interconnection, this is for [0] general orientating knowledge in the field and in terms of (largely missing) cross-border interdependencies [4-7]

13. “BORDEREDNESS“ as a specific term for the limitedness in the research area

After the conclusions on existing linkages on a domestic bilateral and multilateral level, as well as the factual cross-border linkages, the “connectivity coin” of network-scope and -limitations can be explicitly analysed. Based on transaction and opportunity costs, the "borderedness" of the research field’s networks is extrapolated in a comprehensive way.

13.1. Domestic dimension of transnational linkages

As stated before, the most visible borderedness geographically appears at the Dutch-German border. However, this disruptiveness is not of a categorical nature, but the effect of densely accumulated, dynamic borderednesses in many of the levels that are important for Buzz. In this regard, this terms essentially summarises previous considerations and is to be seen in comparison with administratively moderated borderednesses on the domestic level. As will be shown, these internal borderednesses in return affect and are affected by the national border.

13.1.1. Domestic borderedness along administrative borders

Borderedness on a sub-national, domestic territorial level has been identified for both Twente and the Westmünsterland and was a present factor from the very beginning of this research (cf. the territorially bordered accessibility of data for the regional scientific infrastructure).

> Exemplarily, beyond running the universities and playing a major role in knowledge production, the German federal-state have a role in knowledge exploitation and therefore pre-define certain delimitations in this field.
>
> > Precisely, the 78 consultations for founders in the federal state of North-Rhine-Westphalia (NRW) share a common platform for networking and coaching and are commonly (inter-)dependent from the federal state´s ministry of economics (Ulrike Wegener, Interview).
> >
> > Similarly, also the Digital-Hub initiative is on the level of the federal state of NRW, with Hubs in Aachen, Cologne, Duesseldorf, Ruhr-hub in Essen, Bonn, with a volume of 25 million Euro (Malessa Tobit Campustage).

> Regarding knowledge overspills, importantly the participants of each hub have free access to one another´s through an access ticket for the respective co-working spaces.

This accessibility also serves to ensure that the aggregate net-effect of the program benefits the respective territorial entity of its initiators, namely the federal state. In fact, as in these examples, it does not only passively prevent externalities across administrative demarcations, but actively restricts them to certain geographical levels.

Also, on the individual, personal level of the facilitators, the (German) federal-state dimension plays a role.

> This is to be seen in the detailed description of the other hubs characteristics (Cologne, non-application of Bielefeld). Ulrike Wegener reports, that for her core business involving the "NRW Bank" from North Rhine-Westphalia, in the differing and nearby federal state of Lower Saxony, she would have to be "extremely careful" to not give any wrong pieces of advice, e.g. concerning banking. For concrete questions, she would probably address here colleague in the NRW-city of Rheine, "but this [cross-federal case] is a rare necessity" (1:08:40, Ulrike Wegener WFG interview). Indeed for some actors, the border between the two federal states of Lower Saxony and NRW have been reported as challenging: "It was so good that we had a CEO from Lower Saxony for some time, he could advertise the NRW-firm among his mates from Lower Saxony[117], “which [he finds] funny“ but also a general challenge (47:10, Ingo Hoff 20-06-2017).

Especially in the public sector, administrative boundaries also on a lower level lead to interdependencies that form imperatives of doing things. Often, these qualify clearly as a hierarchical governance mechanism.

> As Ulrike Wegener continues, in the Kreis Borken, it is financed by the 17 municipalities and the Kreis itself (3:30, Ulrike Wegener WFG interview). According to her, this leads to the limiting perspective of seeing everything through the lens of the respective territorial unit *("Kreisbrille",* 14:00, Ulrike

[117] = seinesgleichen.

> Wegener WFG Interview). Going even one territorial and administrative tier lower than the structure of a Kreis, even overcoming inter-municipal borders is a rare exception (14:20, Ulrike Wegener WFG Interview).

Observations of the same kind have been made in the Netherlands e.g. for the eligibility to EU-programs,[118] but not as distinctively. The underlying public networks seem to reify in the actual business contacts of entrepreneurs in the research field.

> As an example, Ingo Hoff's orientation and connectivity within the region still largely coincides with administrative demarcations[119]: Firstly the (West-)Münsterland, subsequently the other federal level of Lower Saxony and lastly Twente in The Netherlands. This is despite his manifold and (externally) visible links across the state border that were discussed in detail,

Remarkably strong especially on the German domestic level, all of the administratively moderated network limitations are identifiable along administratively borders. This is although language and cultural differences among the German sub-national, territorial units mentioned do not have a linguistic nor cultural significance that was observable or stated.[120]

Since borders distinguish even homogenous actors, the observable domestic borderedness supports the interpretation that a state border is not necessarily the reflection of network margins but might be the cause of them. Rather than about cultural barriers between two different peoples, it then seems fair to primarily talk about structural gaps between two networks.[121]

[118] The example is the EFRO "Oost-Programma" that distributes EU-money to the two Eastern Dutch provinces of Overijssel and Gelderland. For the province of Overijssel, this brings about ten million Euro on a yearly base for innovation projects. Two-thirds of that money go to Twente for bigger, regular projects (personal conversation). Necessarily, they "have to be issued in one of the two provinces Overijssel (and Gelderland)" (Op-oost.eu ="Het moet terecht komen in Overijssel (en Gelderland", except for 15% of the money that is more freely distributed, information based on a personal conversation afterwards).

[119] Although benefits from that remain largely in Germany, where his (family) business is limited to the federal states of NRW and Lower Saxony (and not The Netherlands at this moment of economic upswing).

[120] (cf. framework condition of culture (Stam 2015) that is left out in this study),

[121] Certainly, this is not to disclaim cultural differences. As could be shown, different frameworks of doing things are present and constitute an additional hurdle. There is the danger, however, to explain every remaining border in peoples' minds with a shallow reference to a black-box of cultural differences.

13.2. Domestic borderedness of connectivity

Relatively high transaction costs exist due to multiple levels of networks within the domestic level of Local Buzz, at low transparency (17:20, Pieter Dillingh Interview[122]). This can be a twofold problem for cross-border interaction, given a) the high attractiveness of accessing domestic actors and b) the low reach of incoming pipelines and probable discouragement that prevents a solid common communication ecology.

On a structural level, such gaps between different institutions are present within Buzzes of the research field. Regarding financial interdependencies, observations suppose, that the state border increases the connectivity threshold that also exists domestically, with gaps on the vertical, personal-institutional level between investors and investees. As illustration and referring back to the previous chapter, many gaps exist between investors and investees, independently from any territorial or administrative scale.

> As an example for a linkage clearly within the same Entrepreneurial Ecosystem, complex negotiations can take the long bargaining process of "six months" (18:50, Bahruz Mammadov Interview), in which a lot of terms have to be defined in the [5] relationship of investors and investees, for actors that "do [initially] not speak the same [technical] language.“

Talking in the "same language" is also important to overcome the problem of mismatches in the financial interdependence[123] (Keijs Eijkel, NovelT at Fund the Future). Due to their experience in this relevant field, specialised investors seem to have a stronger initial bargaining position. Engaging as a young start-up, getting "help from an advisor" (quoted from Fund the Future event) is, therefore, strongly recommended. It is also advisable to identify references for one’s strategic orientation and the knowledge of the sectors " [professional] language" (Keijs Eijkel, NovelT at Fund the Future). All of these aspects, added by a literally different (standard) language, would be even a greater obstacle for actors from an initially different Entrepreneurial Ecosystem, multiplying personal-institutional with a framework borderedness. As addressed before, this does not neglect a possible purpose in

[122] for the industrial networks of Twente Industriekring, Stichting Vriez, Metaaluni, Verenigde maakindustrie.
[123] Talking in the same language is also important to overcome the problem of mismatches in the financial interdependence.

actually overcoming this obstactle (cf. Hofmeijer). Although having a high level of connectivity, network margins below a perfect, maximum of connectivity remain on both sides of the research field. These create the potential for domestic and deliberate networking that is at the core of the social relevance of this thesis:

> In the Westmünsterland example of the Tobit.CampusTage, some firms are keen on the chances "to come out of [their] firm [to interact] with the other firms" and identify underused potentials(anonymised). Others stated that a visit at this event was interesting when finding the time, e.g. to get and see ([0] knowing that) what other regional entrepreneurs "managed to create" (26:00 Ingo Hoff 20-06-2017). It is also relevant to network vertically within the own firm, e.g. for feedback loops through (nationally bordered) client events (cf. 4:10, Ingo Hoff 20-06-2017).
>
> For among the two major anchors of the Twente knowledge economy, Egbert van Hatten reports, that getting to know the Saxion University of Applied Sciences more would be a hypothetical "ideal" (18:10, Egbert van Hatten Interview). Although both institutions are certainly well connected through a Buzz-like dense web of shared and mutual linkages, he goes so far as to report differences in the "culture" of doing things among these institutions that increase the transaction costs for linkages (e.g. lectorates, the educational and practical possibilities, 18:10, ibid.).

Even more, network margins are present within anchor institutions themselves. This makes clear, how also within a common Local Buzz, margins in the communication ecology remain.

> Especially for people from the outside, such as e.g. for entrepreneurs (15:20, 17:30, Egbert van Hatten Interview), these margins can result in transparent networks, even for actors from the overarchingly same Entrepreneurial Ecosystem. According to Egbert van Hatten, therefore, (in implicit contrast to the current state) an outsider should be able to connect to the right place “entering the system from different sides, not only from one" (16:30, 16:50, Egbert van Hatten Interview).

Also, on a more horizontal personal level, integration into networks is not only a challenge among state borders. Ingo Hoff reports a missing mentor role within the

chamber of commerce (IHK), not feeling responsible kind of, but through Benjamin Beloch that he somehow knew from Gronau and came via the program Wirtschaftsjunioren.

> "He came standing along, and so people talked to me. It is funny; you go to [the regional centre] Münster to meet a person from Gronau". For other institutions a similar effect is visible, e.g. for the “Wirschaftsjunioren“-initiative of the Chamber of Commerce of the territorially demarcated unit of Nordwestfalen with the respective strict administratively pre-defined borders (Benjamin Beloch, informal conversation in the car on the way back from AIW Fresh Business, (23:10, Ulrike Wegener Interview).

Due to these personal thresholds, especially observable semi-pubic Local Buzz(es) in this research displayed connectivity margins amongst less familiar actors. Obviously but crucially, not all actors within the same Buzz are willing to share everything with everyone, and there are observations when requests for knowledge spill-overs have been refused (e.g. at Tobit.CampusTage). Events with a relatively low threshold of participating are not enough to actually estimate the Buzz at hand (as, e.g. possible discrediting information about people is not likely to be received in such an environment, cf. Marco Strijks).

The domestic Buzz, therefore, still contains connectivity margins to increase a firm’s competitiveness. Horizontally between institutions and vertically among individuals-margins for further going knowledge overspills remain. This is also illustrated on a meta-level of my, the researcher´s, function as an unintended cross-pollinator (Egbert van Hatten, Bahruz Mammadov, Benjamin Beloch), either as a source for orienting knowledge (“Oh, do they have a university there?”) or as a multiplier (“you could tell them [e.g. Nesst; Hardstart] something about Gründerstein“).

13.3. Opportunity costs in domestic and cross-border connectivity

It can be argued, that since the connectivity of a firm on its own is limited, also the connectivity of the accumulation of clustered firms is. Based on this limited connectivity, Economies of Externalities -and in consequence also competitiveness- necessarily remain with ‘connectivity margins’ below a hypothetical maximum. This has been demonstrated due to the limits in connectivity even in a clear Local Buzz. Connectivity

margins, therefore and in sum, are not unique to border regions. However, in their accumulated collective notion, they more drastically display the need for individual firms to prioritise some linkages over others that can result in a totally bordered status quo.

It is for this interconnection of linkages that in the case of the CBA research field, linkages on the domestic and international level do not only co-exist but are linked and arguably interdependent. Because of domestically unexploited connectivity margins, a strong internal borderedness rises the internal opportunity costs of engaging across the state border. Assumingly, it also decreases the complementary appeal for an external pipeline to enter. Internal borderers and their influence on the whole systemic interplay of forces are, therefore, a crucial addition that is necessary to conceptually grasp the research area.

After displaying the general patterns and networks observable in the field, so far the thesis has singled out the effect of network finiteness for the Local Buzz across state borders. Crucially, also on the national level, borders are present, and connectivity remains (far) below a hypothetical maximum. The relevant dimensions relate to territorial entities, institutions and individuals. On a domestic, inter-institutional and inter-personal level, several facilitative tools have been developed, such as godfather/buddy programs at the IHK-Wirtschaftsjunioren (Benjamin Beloch). Thereby, being an actual "systemic" condition, every

- network,

- networking-event or

- networking–tool

influences each other's vibrancy (9:20 Ulrike Wegener).[124] Considering the empirical evidences of the previous chapters with *inner-national borderedness, high connectivity margins and personal potentials within the same framework* lead to possible opportunity costs of engaging in transnational linkages. In sum, therefore, Local Buzz is not a monolith communication ecology, but the accumulation of manifold sub-layers of temporarily solidified Buzzing events. Deriving from that, what often seems to be forgotten/what appears less intuitive or prominent, also the added networks from cross-

[124] = "man muss die Leute hinter dem Ofen herlocken".

border -cooperation and contacts are crucially interrelated to the respective inner-national level. The argument of this paragraph is certainly not to play down the importance of the state border under study. Given (latent) domestic margins at relatively lower border thresholds, a possible Buzz across state borders is more likely when it does not endanger the vibrancy of the domestic Buzz. Examples of – in contrast – stimulating the Buzz´s vibrancy could be observed on different levels in this research.

> On this level, the initiative was founded by German actors with an interest for The Netherlands and differently interdependent with the Dutch-origin-owned, concrete spot of the "Whiskey and Cigar salon" in Gronau (doing the image film, the marketing, being shareholder, digitalisation, thus being triggered by the interdependency of common shareholders, 5:40, Ingo Hoff 20-06-2017). Reportedly, they have led to learning processes and knowledge externalities with benefits among themselves, similarly to the ones described in a previous part. Concretely, within this organisation team, similarly to what Benjamin Beloch had been reporting for his time in the co-working space Produktivhaus, the actors learn a lot from each other "as you go, along the way", also in terms of concrete skills (e.g. Pecha Kucha and other programs (3:10) Ingo Hoff 20-06-2017).

Although cross-border learning is aimed at, initially the collaborative or mutual learning effects initially appear within the own entrepreneurial framework.

> This domestically anchored mechanism of networking and learning seems to be more efficient than the membership of a business network in "Enschede Business Lunches" for a few years out of which (directly) "nothing turned out" in terms of [6] business success.[125]

It follows that cross-border engagement has a crucial domestic dimension. Also, the most cross-border engaged actors identified in the research field are part of a trilateral web of facilitation[126].

[125] It has to be nuanced, that in the same time contracts (constituting "real contacts" to him) had been signed with firms e.g. in Rotterdam.

[126] Especially when involving a strong hierarchy, negatively, the domestic dimension of cross-border linkages can introduce too many intervening opportunities to actors. In this regard, some facilitation has to be critically assessed in their value for the Local Buzz. At least in the examples, as observed, the various facilitating evolved seems to in the first place "gravitate" actors away from the border to sub-nationally central actors or networks. This aspect is exemplarily for the NovelT event, and the

From the angle of a zero-sum game efforts that are made of a German actor to increase connectedness with a Dutch entrepreneur is not made with a German entrepreneur or institution, and vice versa. From this angle, cross-border would have a negative effect on networking efforts and consequently its connectivity outcomes within the own (administrative) boundaries or among institutions in the own Entrepreneurial Ecosystem. These "opportunity costs" are higher, the more "connectedness margins" and thus mismatches in the own ecosystem, are at hand.[127] In that case, a Local Buzz functions inefficiently in terms of its main purpose: Serving as a governance tool for accessing external resources at low management efforts. Investing energy into a transnational network in the already existing "flood of networks" (Interview Ulrike Wegener) could pressure the manageability of each person's crucial linkages and be an inefficient choice. In defining the borderedness of the research field, therefore, even although national borders might appear essentialist due to their strong moderation on border effects, they do not differ from domestic borderedness in kind.

To conclude this chapter´s findings, the state border between Germany and The Netherlands is, in this perspective, an extraordinarily prominent administrative border and doubtless the most recognisable and significant one. However, I argue, that except for its high prominence, it is not qualitatively different from other administrative borders, nor from their bordering effect. These aspects are reflected in the synthesis of theory and empirical findings of this thesis (e.g. in 14.1.1., and the [merely] "Accumulative character of the state border").

facilitation of Oost NV agency in the Dutch-inland Apeldoorn or (limitedly) Münsterland e.V. Both deliberately pollinate in personal matchmaking and events that are based on a first deliberate search "in our German [resp. Dutch] network". Metaphorically in a detour, it does not lead to a Buzz (cf. desire path metaphor) evolving "naturally" among physically proximate actors in direct face-to-face contacts (Van Geldrop). Instead, the evolving interdependency appears more indirect interdependent, with too many intervening opportunities that raise the transaction costs to actually overspill knowledge externalities (cf. notes on the Funding event NovelT in the Gallery).

[127] And they are at hand as Benjamin Beloch (P17) Gronau reports, big events like the Industrie & Gewerbeschau street fair uncover latent potentials, as with “Oh, I didn´t even know, that we have something like that in Gronau“.

13.4. Conclusion: Borderedness of Linkages and therefore of networkedness

As shown, the seemingly *black box* of the state border is "just" an especially manifold gradual border with a seemingly culturally essentialist dimension.[128] Two reasons are paramount for this claim:

1) In the case under study, the state borders and thereby modern national states such as the Netherlands and especially the Federal Republic of Germany are no homogenous monoliths. They have domestic network margins that are overcome by various facilitation (efforts) of private and public actors.

2) Although facing major structural obstacles, the constant and repeated practice of manifold actors in a proximate border area makes this border more permeable. This is especially, when facilitation reaches a visible level, unfolds latent potential of regional actors and ties together a common communication ecology.

In sum, unlike the more static finiteness of networks, a processual borderedness is identifiable at both, a domestic and international level. This allows to conceptually connect the phenomena at state borders to mono-national realities, establishing a gradual link rather than a categorical distinction. Both are indeed interlinked: For engaging across a state border, additionally strong domestic borderedness is harmful, as it increases both, transaction- and opportunity costs. The domestically positive impact of “transition zones” and domestic brokers, therefore, indirectly improves the pre-conditions for cross-border engagement.

This highly relevant factor is however often overseen in the context of the highly prominent state border which tends to identify connectivity margins merely at the national demarcation lines. Although not relevant in the research area under study, this appears highly relevant especially for peripheries with an unsatisfying buzz on the regional scale. That said, it socially motivates for and justifies the use of cross-border linkages with the goal to consolidate domestic network connectivity.

[128] The non-essentialist claim - and the relative neglect of legal restrictions - bases on the assumption, that the given frame of the EU single market remains.

14. SYNTHESIS OF THEORY AND EMPIRICAL FINDINGS

The following chapter interprets the empirical findings to generate results in the light of the theoretical approach of this research. It points at the domestic level in understanding the complex interplay of network-scope and limitations on different geographical levels. Essentially, thereby, it displays the stimulation of the domestic linkages through external ones in a border adjacent case. This empirical insight is to be seen against the theoretical background of Local Buzz being stimulated through Global Pipelines.

It partially confirms hypothesis b), in which this research has characterised the transnational linkages in the area (limitedly) as "pipelines", necessary to constitute (domestic) linkages of Local Buzz.[129]

14.1. Bordered interplay of Local Buzz and Global Pipelines in the research area

Bringing the empirical evidence together with the theory of Bathelt et al. (2004) it appears that cross-border cooperation in the area under study can have a "naturally" stimulating effect on the Buzz-intern connectivity and cohesion. It is, therefore, not just an added – or subtracted - level to the Entrepreneurial Ecosystem but changes the whole system with its borderednesses of networks and connectedness margins in different levels.

To revise, the preliminary results of characterising events in the CBA justified a focus on the visibly limited national permeability, contrasting the Netherlands with Germany (NL / GER). However, the horizontal distinction between two communication ecologies is not sufficient to grasp network limitations in the field under study. Indeed, within the domestic level, other horizontal -but also vertical, intra-institutional- borderednesses appear. Contrasting the Netherlands (NL-NL) to Germany (GER-GER) is therefore not sufficient. Besides acknowledging "transition zones" (NL-DE, DE-NL) it has to be conceptually added by a more "three-dimensional" approach:

[129] With the exception for financing [5] relationship, where no linkages were identifiable.

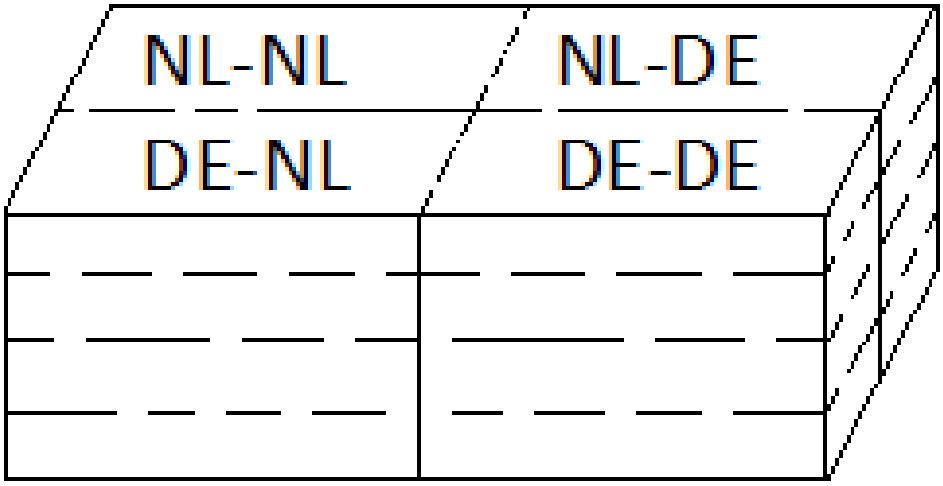


Figure 38: Schematic, horizontal distinction into the Netherlands (Twente) and Germany (Westmünsterland), with facilitating intervening opportunities and (vertical/horizontal) borderednesses also between domestic administrations and institutions.

To underpin the effect of international borders on domestic and personal borderedness, Ingo Hoff reports an estimated amount of "only" 10% Germans[130] (21:20, Ingo Hoff 20-06-2017) at the "Haringsparty" in Enschede (that Ingo Hoff knew from and was invited by the municipality of Enschede**).** This 10% of German, temporarily present in the Dutch Buzz, however, contribute to overcome domestic network-margins. Thereby, they crucially reduce the opportunity cost of engaging in cross-border activities and might even contribute to internal connectivity.

Based on this exemplary empirical insight and given the earlier reflections on physical proximity, also conceptual opportunity costs of an "empty Buzz" (cf. Bathelt 2002: 18) are potentially decreasable for both, individual entrepreneurial actors that engage across the state border.

Even more, the contact with an external actor can lead to more cohesion with also present domestic actors. This can be seen based on the assumption that "identification with territory [was] hierarchical", (Moles and Rohmer 1972; Leimgruber 1991 in Van Houtum 1998, 2.4.6., Figure 2.3.). Following them, that social identity was based on the smallest common territorial scale, the observation and interview-finding can be explained: Nearby actors tend to find each other more easily when in a larger

[130] and possibly low due to unhandy planning on the catholic sacraments day, a holiday in the federal state of North Rhine-Westphalia.

(geographical) setting. Taken further, this could be explained because of the (appearing) greater likeliness of interdependencies from spatially close people

With the cross-border contact initially stimulating the internal connectedness of a group or even its group-forming, the likeliness of "staying in a common system" is arguably much higher. For actors from an existing or evolving grouping then, in repercussion, the international is the common denominator for their local connectivity:

> Empirically in this research, an effect like this has been reported, e.g. for a travel group from The Netherlands to the American Silicon Valley. Although the "contacts there" were never used, "[the] group among [them]selves had been - and still is - in solid contact, even seven years after" (Edwin Moneybird, Funding Nemo event in the Spinnerij Enschede, own Buzz facilitated through Nesst Hardstart).
>
> Similarly, the responsible municipal employee for contacts to Poland in Enschede, Agnieszka Schipper, reports a domestic group-forming process of Twente entrepreneurs, before meeting Polish counterparts (preparing a program, information). It apparently stresses the common (Eastern-Dutch) framework that actors share, leading to perceived and relative proximity with quotes like: "So you are from [non-Twente] Nijmegen? I am from Enschede, just 150 km away and thus not far, strange that we had not been in contact yet".

With their internally strengthened, absorptive capacity also their cross-border interface with the Polish participants is arguably likely to increase (weaker, but more complementary). It can be hypothesised, that the neighbouring Buzz becomes more attractive. Making the abstract notion of "geographical identification" concrete, this might be due to greater transparency and access to complementary linkages of Buzz-inherent own (external) linkages. Internal connectivity in that way is indirectly beneficial for the transnational connectivity, reflexively benefiting Local Buzz. The initial importance of domestic connectivity which stimulates cross-border cooperation differs radically from the assumption of two weak networks automatically coming together due to an inconvenient domestic starting point.[131]

[131] This vision appears attractive for some peripheries at the state fringes, with Frankfurt (Oder, in Germany), as an example (based on personal experiences from studying and living there).

> In that way also the most impressive and obvious example of a common, trans-national bus-trip to the Hannover trade fair on digital innovations (by the development agencies Ondernemersloket Enschede and WTG Gronau, initiated by Elize Radema from Ondernemersloket), especially indirectly contributes to a cross-border communication ecology by networking domestic actors first (cf. linkages in Gregory et al. 2011)[132]..

Adding to the somewhat territorial scales mentioned, this also elucidates how a common challenge such as the digitalisation of production chains can provoke the establishment of new connections. With space-time shrinking and increasingly flexible, multi-actant technological change like this, competitiveness gains new dimensions for both, internal processes and the access to external resources.[133] This could also alter the way to deal with and attract "talent" that is at the base of intra-firm processes and is thereby indirectly stimulating (regional), inter-firm Economies of Externalities. However, the time-space shrinking effect of digitalisation can, in some cases, even lead to (re-)enforced borderedness. This can be due to an area of scope that is mostly nationally defined as based on different (national) language and legal framework used (e.g. with search engines that provide overviews for "everywhere in Germany" or "all over the Netherlands" - separately).

[132] Not only external actors with direct and personal actors, but also common challenges with external programs can serve as a “common external pipeline“ which create a periodic common framework to deal with it. This was reported for the University of Applied Science based FH Impuls Ruhrgebiet, external goal connecting actors for a support program about spin-offs’ electronical mobility, more the broad goal of networking than the specific one to win the program.

[133] For example, in term of more transaction costs to win clients, but less to process their needs; collaborating with actors at a distance.

14.1.1. Accumulative character and the role of the state border

As could be shown, the state border being a non-essentialist and processual accumulation which is gradually different from inner-country realities. Making one single entrepreneurial step across the border, therefore, is not sufficient to profit from a transnational Buzz. It rather evolves in long and manifold overlapping processes in an environment, where many actors do so, positively moderated by physical proximity and stimulating each other´s success.

The borderedness also gradually accumulates through the absence of implicit facilitation across the border. This might be or restrictive institutional reasons, or because of the invisibility of latent interest of actors. In that vein, overcoming Buzz-facilitating thresholds -like the earlier mentioned financing partners in the respective other country- the process can gather an initial positive and self-enforcing momentum.

As illustrated in the following, final model on the characteristics of Local Buzz in a CBA, the conceptual vocabulary developed is meant to serve as a toolkit to address phenomena that differ from mono-national realities. Based on the example of Twente (NL) and the Northern Westmünsterland (GER), the original model to explain Local Buzz specified for an inner-European border region. Thereby, except for the actual economic actors and firms, every model-inherent aspect is somewhat altered:

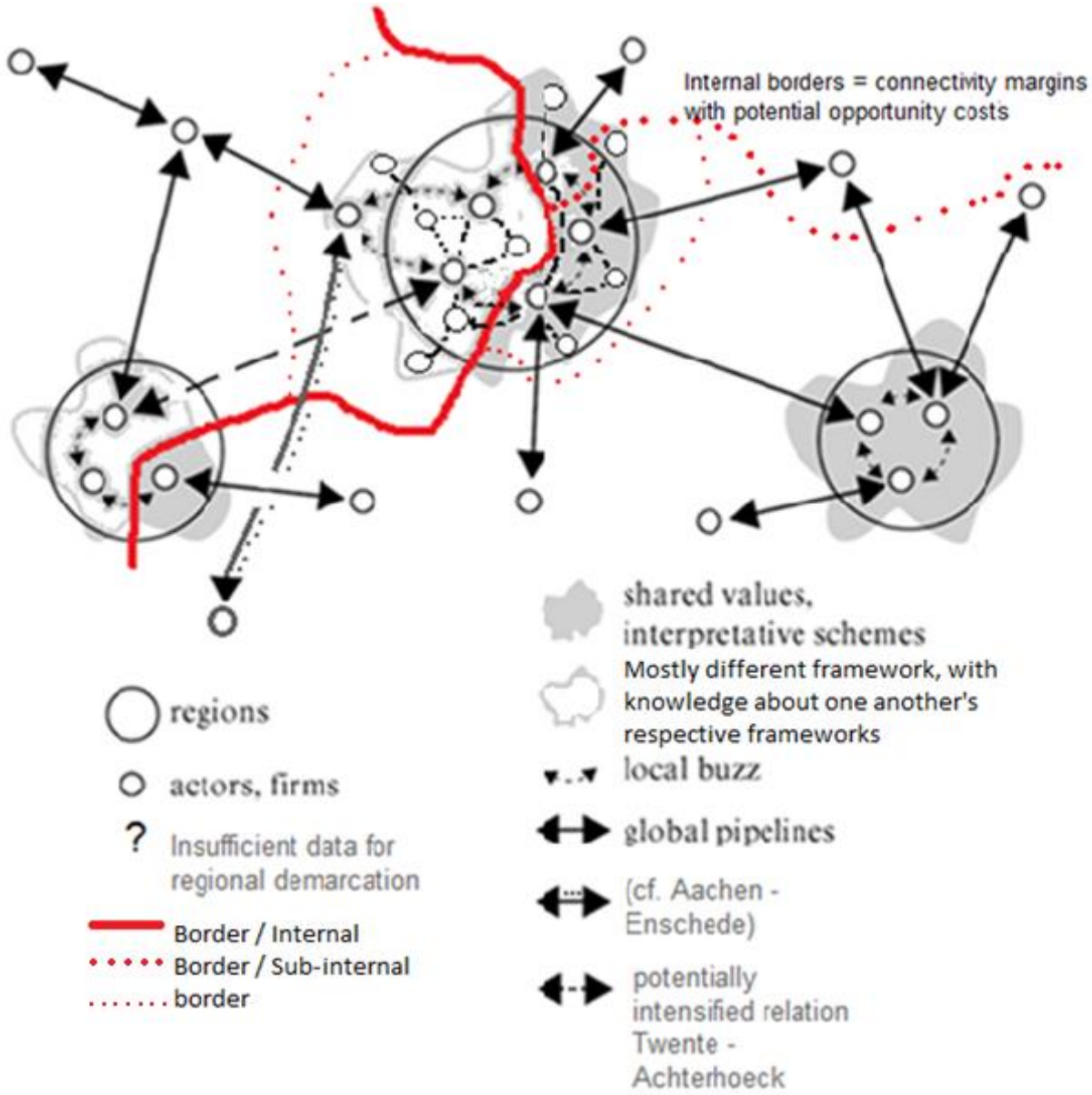


Figure 39: Local Buzz, domestic borderedness (within the model of Local Buzz and Global Pipelines (based on Bathelt et al. 2004).

Altering the model starts as early as including the first step of a necessary regional demarcation. Based on only a poor functional understanding and data grounding and the framework of shared values and schemes, it is much more disjunctive in the CBA under study than the friction of distance displayable in the original model.

14.2. Conclusion: The empirical results within the theoretical model

Crucially, the transnational zone of positively intervening opportunities between the two regional networks alters the “rules of the [domestic] game”. It changes the economic dynamics rather than merely adding another level to respectively in both Entrepreneurial Ecosystems.

Local Buzz, identified along linkages, could be identified in a mostly bordered dimension and with numerous examples in both Entrepreneurial Ecosystems. However, it is altered in so far, as networking in the Local Buzz simultaneously can evolve across the state border (cf. Haringsparty, Ingo Hoff) and might even be stimulated or constituted by the Pipeline-like character of the proximate transnational linkages, overcoming internal limitations in an administrative, institutional and personal understanding.

OUTCOME

15. ANSWER TO THE RESEARCH QUESTION: Network-scope and -limitedness in Twente and its German "Hinterland"

Answering on the validity of the two initial hypotheses of:

a) Hypothesis “Glocal Buzz”. Interaction with the neighbouring CBA is part of the local communication ecology at low transaction costs but does at the same time bridge actors from different domestic frameworks.
b) Hypothesis “Glocal Pipeline”. An Interaction with the neighbouring CBA is a Pipeline at close physical proximity. This includes 1) being situated in a differing framework and 2) having manifold complementarities.

Along the tripartite categories based on Bathelt et al (2004), this research asked the question of the scope and limitations of the entrepreneurial network(s) in Twente and its German hinterland, in order to elaborate on the borderedness of Local Buzz.

According to the bare scope of the network among the events observed and actors interviewed, the CBA under study does not constitute a common Glocal Buzz across the state border. Even more and possibly surprising, the most feasible part of Twente's fragmented German "hinterland", the rural Westmünsterland, constitutes a fairly buzzing ecosystem of its own. It is therefore not an entrepreneurial hinterland in the sense of being functionally oriented or sub-ordinated to the Twente-ecosystem. With (very considerable) exceptions that provide for relative permeability, the communication ecologies have been extrapolated as differing and disrupted.

Importantly, the borderedness, thereby, does not only include the state border, but is to be understood in its crucial interplay with inter-institutional and inter-administrative borders at the domestic level. As one of the crucial outcomes of this research, this helps to conceptually overcome a focus merely on the prominent national border. It, instead, invites to widen the perspective to grasp network-scope, in its borderedness, across all actors and entities in the area under study.

Referring back to the two assumed poles of hypothesis

a) Glocal Buzz and

b) Glocal Pipelines,

this can be framed into more concrete vocabulary. Between both analytical poles, the status quo mostly resembles Glocal Pipelines across the state border: They are missing the collective dimension of "coincidences" at low transaction costs but provided added, because complementarity value. However, the proximity of these pipelines is considered crucial for the relative permeability of the two adjacent communication ecologies. Importantly, this triggers domestic connectivity effects that make the research area one of locally buzzing Glocal Pipelines.

In the following, these overarching empirical findings and thereof derived conclusions are specified and embedded into their wider academic and social field, to approximate a practical understanding of these theoretical outcomes.

15.1. Borderedness of Local Buzz in the Entrepreneurial Ecosystem

The research refines Makkonen's (2015, in Benneworth, Pinheiro & Karlsen2017) notion, that spill-overs happen much more rarely than within national states. To sum up, evidence for borderedness was

- identifiable in untraded externalities such as (orienting) knowledge,
- present in networks through (no) linkages with low-involvement personal contacts and few common references,
- given the limitedness of interdependent (financial) business [5] relations[134].

In sum and "despite the abolishment of internal [physical] borders within the EU" on a local scale, the empirical evidence has confirmed that "innovation and knowledge spill-overs [are] still hampered by nation-state borders" (Makkonen 2015). Although the underlying Entrepreneurial Ecosystem appears limitedly linked, it barely functions as a common governance mechanism. Neither the access of (global) resources,[135] nor a joint transnational Local Buzz depicted through cohesion and coincidences visibly

[134] Financing is a path dependency, so we cannot really expect start-ups to have cross-border choices when they come through different phases, broad and permanently, giving direct interpedently and thereby indirectly marketing the investor.
[135] Such as in the definition of Porter (1998c: 18), featuring information overspills, market awareness, competition and a shared pool of factor conditions.

occur. In the direct cause, therefore, Hypothesis a), supposing a common regional, international Glocal Buzz is de-legitimated as a general description of the field.

Even much more than regarding trade in the "single European market"., the border in (Economies of) Externalities remains highly relevant Full-fledged European Integration for that reason is partly an illusion, even for an “integration leader“, such as the research area. The CBA does not act as a common player of globalisation, both networks are rather an object for one another with a certain attraction to be connected It is important to understand, however, that connectivity among territorial entities, institutions and people has important margins also on the domestic level which qualify for the term "borderedness".

Eventually, it is due to the multiplicity of these, that the state border between The Netherlands and Germany appears so prominently: Networks between Twente and the Westmünsterland are indeed often sharply disrupted and only partly permeable in their communication ecology. Crucially, however, this sharpness is different on the bilateral and collective level, and eventually dynamic as the domestic level with which it interplays. Remarkably and especially compared to non-border adjacent regions moreover, even the small extent of a trilateral common buzz, is remarkable. Foreshadowing the mechanisms of Local Buzz in the CBA under study, it – still –allows for limited and indirect permeability of the network border and makes it a limitedly sticky place.

15.2. Mechanisms of Local Buzz in the cross-border-area

The original hypotheses a) on Glocal Buzz and b) on Glocal Pipelines fruitfully shed light on the Economics of Externalities in the CBA under study. However, both fail to fully provide a conceptual explanation of the situation at hand. As the findings rather indicate, Local Buzz and Global Pipelines in a CBA can appear as a domestic density of transnationally linking pipelines in strong proximity. Crucially and distinctively for the CBA compared to non-border adjacent areas, national separations can be limitedly permeable for knowledge spill-overs. In their collectiveness and given positively intervening actors, these can then qualify as limitedly buzzing linkages.

In detail, the exceptional occurrence of self-maintaining transnational Buzz based on pipeline-like, but manifold and proximate contacts (hypothesis b) leads to the conclusion that the state border in this regard is a multiple overlap of missing or

differing interdependencies. Beyond spatial and institutional aspects, this can include the dimension of e.g. differing time frames, such as slightly shifted conjuncture cycles in the Netherlands / Germany. Thought further, this can mean, that the windows of opportunities for common, transnational policies might not come together at a common point in time, limiting cross-border buzz in the long-term (cf. the overall higher unemployment in the Netherlands today, compared to a relatively worse situation of Germany in the 1990´s and early 2000´s).

This study initially wondered about the role of both the local signified by face-to-face contacts and the sharp administrative finiteness in accessing (global) resources in a border region. As this research confirmed in defining its research field, already the very notion of region is difficult for CBAs. They enable face to face contact without being[136] in the same (sub-)national framework, something that is often simultaneously treated in the literature. With an area like Twente/Westmünsterland, a region in some regard and not in another, theories on regional economic developments face a challenging field. Most theories address "regional economic development" from the implicit angle of regions as necessarily sub-national units. In the light of this research, therefore, they are not only inexplicit about CBA's but should partially be doomed in-exhaustive in their explanatory capacity.

The regional scale to facilitate governance mechanisms of untraded interdependencies cannot be seen on its own. Rather, it should be regarded in connection to other governance mechanisms, such as hierarchic administrative structures. The regional governance mechanism functions in the CBA under study is not ideally connected and, in this regard, necessarily "mismatched". The tolerance for these sub-optimal matching (cf. earlier introduced conceptual "threshold of indifference") is, among others, dependent on the overall (national) conjuncture and the (related, respective) in-firm situation. In a non-border region as has been shown, even the "tolerance for mis-matches" might be bordered.

Domestically, orienting knowledge, appears to dissolve gradually, while in a CBA as the one under study, more mind cuffs and black holes are apparent. However, these

[136] The common framework is very. Admittedly, that the EU-internal market and especially visibly the Schengen area without border control is a common framework for Germany and The Netherlands that indeed enables face-to-face contacts in the first place. For sure, the borderedness applies more for the face-to-face contacts than for the (administrative) framework.

mind cuffs are somewhat mitigated by a limitedly permeable communication ecology. For firms with a positive net effect on the territorially feasible welfare, this contributes to a spatially "less mismatched" reality in CBA´s regarding labour and overall agility and might generate additional incomes that aggregate in a positive welfare effect.

As regarded in this research, Local Buzz is a key to access complementary (external) linkages, to keep agility high at low managing effort. The permeable communication ecology therefore, has a reason not in adding more complexity to the existing networking, but in reducing it. A successfully buzzing ecosystem in a border-adjacent area, crucially has to consider the indirect moderation by the governance mechanism of hierarchy, present for administrative interdependencies and accountabilities. Although not directly leading to a Local Buzz, transnational linkages can contribute to greater agility of actors, stimulating new interdependencies and flows of externalities within the national context. It addresses certain layers of the multi-level and black-boxed accumulation of borderedness that is, ergo, changeable.

When manifold transnational pipelines can stimulate the domestic buzz, this research finds, that transnational connectivity in the form of Local Buzz in the CBA could be stimulated by external contacts entering the CBA (imagine in common frameworks like the previously mentioned exchange with Poland; the trip to Silicon Valley). In cases like these, inducing the evidence of the concrete area under study in the original theoretical assumptions of Bathelt et al. (2004) can contribute to illustrate the inherent transnational and domestic levels.

15.3. The role of the state borders in economics of externalities

Based on the insights on the network-borderedness in the CBA and the mechanisms of Local Buzz therein, (national) states and borders are interpreted as moderators of globalisation (effects) for entrepreneurs. As stated, the borderedness is observable in various dimensions of interdependencies in which quantitative, non-essentialist differences lead to "qualitative" and seemingly categorical differences. As follows, the bordered dimension of the Local Buzz in the region under study is not a matter of an absolute disruption based on legal restriction (cf. Chilla hard geography, compared to financial stimuli) or an essentialist, nationalist separation. In the Twente Buzz, e.g. it does not appear essentialist as neither "nationally rooted" nor exclusive to national

members (cf. Bahruz Mammadov from Azerbaijan[137] and German starters such as Pablo (AER, Hardstart). In the Westmünserland Buzz, e.g. the Dutch owner of the network-facilitating Whiskey and Cigar Salon Gronau in the Westmünsterland Buzz proves the possibility to be well -and possibly better- connected to the communication ecology of a non-home country. However, a gradually lesser quantitative dynamic (e.g. fewer linkages). also leads to differences in qualitative terms (e.g. talking with each other but having no one to talk about with about each other). Linkages exist limitedly but mostly lack a fundament in interdependences. That way, the national border is no “black-box“, but a gradually accumulative place of overlapping “shades of grey“.

The research has shown, that physical proximity strongly coincides with the exchange of untraded, immaterial interdependencies. The limitations of immaterial interdependencies might surprise in an "increasingly borderless" world[138] and especially for cases such as an "integration leader" within the European single market. *In the light of this research, globalisation as a set of practices influencing CBAs is not a process of increasing borderlessness, but rather of shifting the priorities in who to "interface" with.* The necessity for (regionally, proximity-moderated) externalised governance mechanisms remains. With the internet being a space-time shrinking technology par excellence, the manageability of contacts at low costs remains a challenge for every economic actor.

The altering effect on the regional competitiveness and final welfare for border regions are crucial. Especially for border adjacent, knowledge-economy based areas such as Twente, the actual limitations of the European single market become clear. While the border effect is feasible in the exchange of goods and services, it appears as an even larger disruption in terms of capital as relevant for Entrepreneurial Ecosystems.

As this paper shows, the reasons, therefore, are (also) structural. The actors in the area under study appear to behave rational facing the existing network structures, which on their own are largely moderated by hierarchical, nationally based administrative structures.

[137] (iTW)With Linkedin firstly check own network and investors (10:20, Bahruz Mammadov Interview).
[138] The borderlessness of which can be questioned with the example of digitalization. Here, in some regards, even a nationalizing effect could be observed (finding a partner on the nationally categorising Tinda network, rather than in the neigbourhood, Xing vs. Linkedin), while it also offers opportunities (more codified information available at low traded transaction costs).

15.4. Regional stickiness through physical proximity of CBA entrepreneurial networks

Regional locational advantages constituted through networks might coincide with physical proximity, rather than being its causal consequence. Mere proximity across the border often does not translate into business contacts. Within the geography of border adjacent areas, proximity in this regard appears as a supposedly long-winded and yet under-developed causal explanation. Crucially in terms of the border's relative permeability, however, proximity can contribute to a repeated face-to-face overcoming of the border of differing national frameworks.

This research raises some questions for the underlying assumption of the regional scale as an essential facilitator for the governance mechanism of untraded interdependencies. For the area under study, it appeared that people beyond the scope of face-to-face contacts or interdependencies were just black holes. This is although somewhat being interwoven in the regional scale, and is depictable even for the crucial regional anchors. While domestically, this effect appears more gradually, the national border is a sharp and visible disruption. Ongoing research should, therefore, be very attentive to distinguish mere co-relation of regional scale and the governance mechanism of untraded interdependencies, from a causality. Especially digitalisation with its manifold implications, e.g. on working culture (e.g. co-working spaces) lends urgency to this distinction.

Facilitation can play a role in that and has doubtlessly played. However, from a rational-actor perspective, the deliberate pollinators to facilitate programs are mainly accountable for a successful contact-making only ([1] in the Interface-model). It can even be supposed that rationally speaking, some professional program facilitators have an interesting in keeping up their crucial role as a business link and thus not creating a multiplier effect.

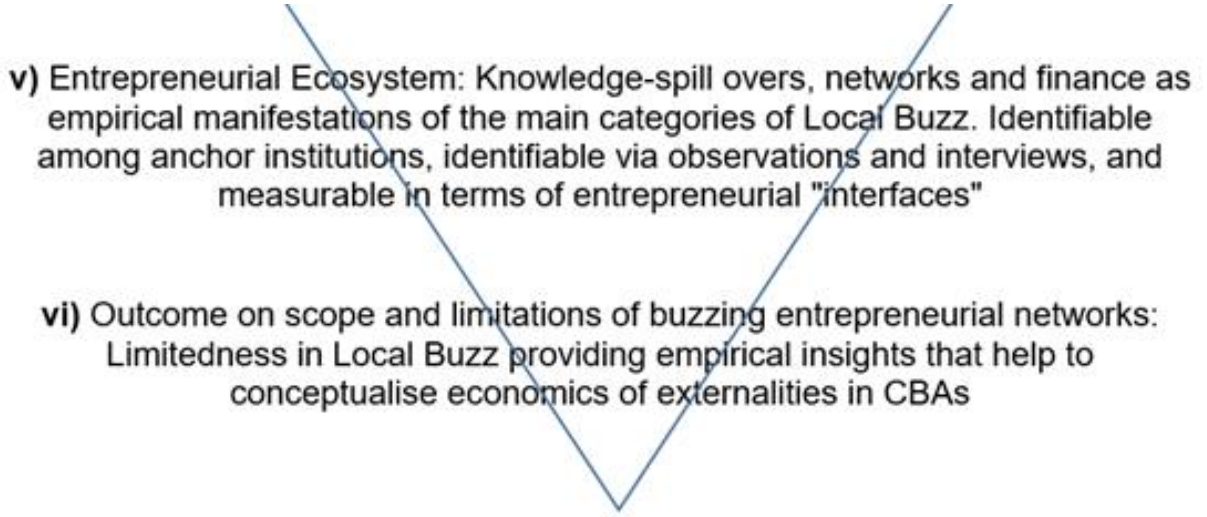
In any way, non-deliberate, cross-pollinators, like financiers do not appear to have an interest only in the contact-making [1], but mainly the success of the business [3-7]. This can benefit the aggregate regional welfare effect much more directly. For both deliberate and coincidental cross-pollinators, the domestic level provides much more "lubricating oil" *within* administrative borders than *across* especially the state border. As stated in the conceptual vocabulary, this feeds back also to the theoretical

background of this research. Beyond, it points out administrative [hierarchy] features as crucial structural factor of regional competitiveness, besides and as a moderating factor to the entrepreneurial [market] competitors

In conceptual terms, this research concludes that the reasons for the relatively lesser connectivity across the state border can be found in the wide absence of transnational interdependencies to (not) underly business linkages. Closing gaps in the communication ecology and thereby the Economies of Externalities has to involve the complicated domestic dynamics. The domestic borderedness is likely to be overseen, given the considerable prominence of the national border and despite its interdependence on domestic connectivity.

To reach more insight on the regional stickiness in border-adjacent areas, this research invites to further study the complex and under-theorised status quo in border adjacent areas. It does so, however, against an only gradually different intra- and international background, taking close note of the way that administrative demarcations influence the vividness of Ecological Ecosystems. This vividness – and viability - might be severely hampered especially when the administrative dimension largely differs from the functional one that e.g. gravitational models would suggest. Concluding on these – mostly inter-state – aspects, border adjacent areas contain large potentials for policy makers: Both in overcoming special challenges, such as in exploiting -the even more under-researched- special advantages of border proximity.

16. RECOMMENDATIONS FOR POLICY-MAKERS IN THE FIELD



viii) Recommendations addressing regional policy making (i)

The CBA under study displays networks which are bordered in manifold ways. Although margins in connectivity are unavoidable, the state border can, accumulated, be a serious barrier for economics of externalities. To help establish a competitively networked regional environment for firms, policy makers should therefore primarily acknowledge the bordered status quo and seek its specific opportunities.

Since the entrepreneurial actors showed very rational behaviour in the beyond-market mechanism of exchanging externalities, solving this issue purely based on market-economy mechanisms does not seem promising. Rather, it seems that especially administrative hierarchy mechanism can contribute to and underlie such borderedness. The privilege of border adjacent regions is, that they can employ regional proximity to stimulate the manifold engaged actors that already (want to) overcome the barrier. As this research underpins, linkages across the border, thereby, are not a trade off with domestic connectivity, but can actually have a stimulating effect on economics of externalities also domestically.

16.1. Conceptual synthesizing the research in the light of its social relevance

By addressing boundaries and their influence on the innovative capability and thereby on the regional competitiveness, the policy imperative of "doing something with Germany" can be based on a tailor-made, CBA adapted vocabulary toolkit. It elucidates the national dimension of orienting knowledge, linkage, interdependencies and of cross-border cooperation itself. Stimulation of the regional economy, therefore, is based a greater knowledge pool and can be approached at least have an overview of major dimensions in the field.

Also, on these grounds, connectivity necessarily remains below a hypothetical maximum, both across state fringes as within them. From this positivist findings, normative conclusions can be derived towards the role of the public bodies in facilitating the Local Buzz. For these chances that remain latent and invisible, the administrative as deliberate "pollinators" of the regional Entrepreneurial Ecosystem, they can stimulate private (entrepreneurial) multipliers in their cross-pollinating functions, stimulating the non-marketed governance mechanism of Externalities through the mechanism of the administrative hierarchy. Therefore, to address a CBA in empirical terms is challenging from the very ("basic") regional demarcation. Data that allows understanding of border regions in functional terms is sparse, and the tendency to not deal with this kind of specification in mainstream literature reasonably understandable due to high transaction costs of access.[139]

Combining the empirical insight about interdependence (externally oriented ones) with theory can help to overcome the policy "paradox" to stimulate a Buzz that will efficiently take care of itself. The missing link that evolved from this research is the presence of domestic interdependencies that are stimulated through external, "Global Pipelines". Clearly, and disagreeing with Gertler (1995, 2003 in Maskell, Bathelt, Malmberg 2006: 10), "free access to Local Buzz is [not] a natural consequence of just being there". As a governance mechanism, Local Buzz is always based on initial pipelines that are to "govern". This is for CBA´s as for non-border areas, just that in these cases as apparent, Buzz and Pipelines get a special spin that allows for possibly useful

[139] These high transaction costs of cross-border data access is, on a meta-level, also problematic for any kind of research.

dynamics to be exploited. Thus, to facilitate transnational-links, the international neighbours should confront a common interest in pipelines and a facilitated management of them. It can enforce their cohesion (Mudoch 1995 in Bathelt et al. (2004: 14)) without having the danger of an empty Buzz (Bathelt et al. 2002: 24).

The indirect notion of the possibilities to stimulate Local Buzz is in contrast to its frequent treatment in actual cluster policies. Too often, policies "are so predisposed towards local networking [, that] the importance of external, trans-local communication [in need of support] is overlooked" (Lagendijk and Lorentzen 2007: 457; cf. Bathelt et al. 2004: 48, 49). The indirectness of regional development through Buzz is then, accordingly a) a domestic dimension of transnational linkages and/or b) a transnational dimension of linkages external to both sides:

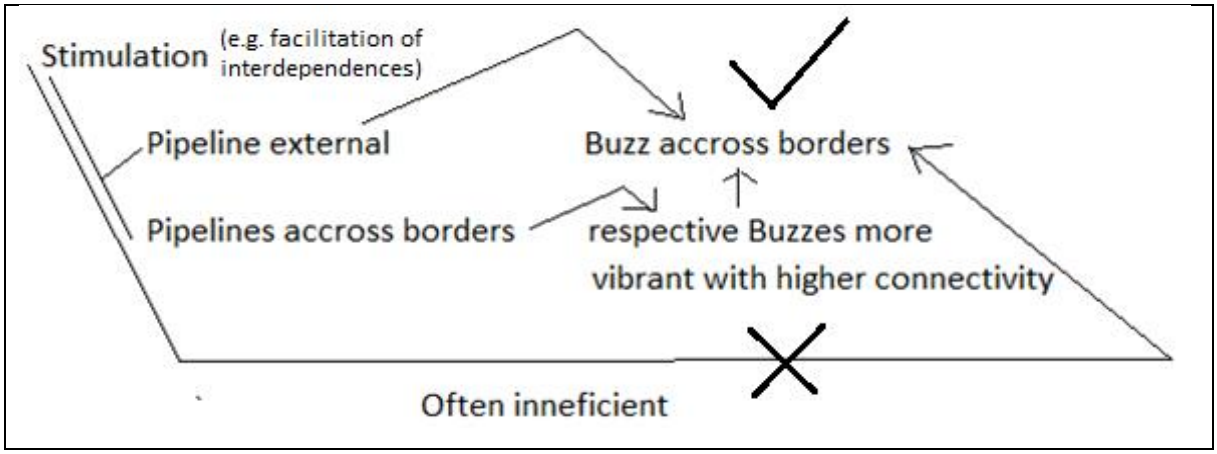


Figure 40: Indirect stimulation of the Local Buzz across borders.

Especially necessary is an awareness that a governance mechanism such as the Local Buzz is related to other forms of governance mechanism as market and hierarchy. Especially for the latter, involving most public facilitation of regional development, the policy can intervene and, e.g. issue more data that includes the respective another area, and minimally stick to a joint standard framework to increase comparability. The hierarchy mechanism furthermore – unlike market mechanism- has the advantage not to be subjected to economic conjuncture. Therefore, it has the role in making special effort in times of economic upswing, when it is attractive for the transnational neighbour to collaborate, counterbalancing the (considerable) fluctuations in the market-related, economic development.

Additionally, the hierarchy mechanisms should stimulate non-marketed relationships of [7] Externalised (Public) facilitation thereby should be concentrated on facilitating a

way for (private) and market-driven multipliers. These can indeed engage in the regional development due to the [7] external interdependence of an innovative and attractive image (e.g. an employee). Examples of this have been found with the Gründerstein award, but also for co-working spaces that are purposely not offered too cheap to keep incentives high. Economically based, self-interest with a possible interest for others "egoistic" interest seeking could overcome that threshold, which can be an interest in the other market or profiling based on innovativeness (and on the assumption that cross-border activities indicate innovativeness). The public administration bodies should help the multipliers to find the connectivity margins and let them exploit them fruitfully. On a meta-level, one way to do so is also to engage in further, implicitly cross-pollinating research. This could also help to distinguish mere co-relation of regional connectivity from causality, thereby finding tailor-made answers of what the own region really needs to stay competitive.

16.2. Practical pieces of policy advice

The following elaborates more specifically on concrete steps that can be taken. It normatively assumes, that more cross-border cooperation is desirable. In the light of the regional aggregate welfare effect through greater Economies of Externalities across borders respectively indirectly stimulated externalities at the domestic level:

1) Common administrative structures to establish new interdependences

In many ways, the borderedness of the networks and thereby Local Buzz is (in-)directly related to administrations and a structure of incentives. Often, they do neither include the area across the border nor accountably reward activities there. On the different levels of sub-state actors as demonstrated, therefore, steps can be made to stimulate hierarchical governance mechanisms that enable cross-border cooperation. This can also include establishing physical institutions across the national frontier, such as mutually accessible co-working spaces.[140] The area under study is currently making the effort in this direction, with attempts to create a more institutionalised transnational

[140] The question of establishing fully-fledged institutions across the border is difficult given the persisting limitations in the EU´s single market for the knowledge economy. While it is arguably the most efficient action, the administrative hurdles are very high and long-lasting. Nevertheless, its function as vehicle for subsequent initiatives is of importance (based on personal, three-year long observations in the German-Polish border town of Frankfurt (Oder)/Slubice, with the Viadrina/Collegium Polonicum university institution).

urban area (Tubantia 2017, Tubantia 2017b). Clearly, (sub-)nationally based, hierarchic administration are legitimated by and thereby interdependent with (sub-)national electorates. This geographically pre-defined interdependence surely has a role in (de-)creating the borderedness of areas like the one under study (cf. chambers of commerce, investment projects etc.). Cross-border institutional frameworks, in the light of this research, can be especially fruitful when they create new interdependences in a differing geographical area, provoking further going, "automatised" knowledge overspills. Within such a possible, common framework, the results of this research point very concretely point at: More actively considering the less visible, but very active Buzz in the rather rural Westmünsterland; Overcoming persisting limitations in the accountability of cross-border engagement (e.g. the simple reimbursement of trips); A focus on positive externalities to be mutually accessible when considering the currently bordered network structures:

1.1) Common Data to provide orientation within the status quo

Across state borders it appeared, those non-functional areas of potential economic cooperation are identified as black holes. This appears different from a mono-national setting, where information is always limitedly over-spilled due to administrative interdependencies. One concrete way to lower the transaction costs to match actors and to generate the externality of orienting knowledge, therefore, is to create a (common and attractive) database “just in case” (cf. "[0] knowing that"). The creation of publicly accessible data externalities can then increase business agility. As a more modest recommendation, at least the responsible units in the CBA should make an effort to keep their data non-bordered, e.g. in sticking to existing supra-national frameworks as suggested by the OECD (2013).

Especially for start-ups in a very dynamic business environment, such a pro-active database, "just in case" can increase their agility and delivers a stickier competitive advantage for the region. Very concretely, putting detailed regional maps at co-working or places of coincidences, such as corridors and-coffee-machines could serve as incentives to "Buzz" within on the CBA and domestically.

Especially the highly overseen, yet physically proximate Ruhr-area as one of Germany´s largest research centres can be addressed with such knowledge overspills. Favourable examples of this can be already found but can be enriched by more visible

information also on regional champions and the basic knowledge infrastructure in a comparable framework. Such a process could, however difficultly, gain a more automatic maintenance in case of actual interdependencies across the border, that link actors in a mutually interdependent way and naturally stimulate knowledge overspills in all areas. Given the evidence of this research, awareness for the currently nationally bordered dimension of business activity is a crucial precondition. Given the difficulties, the suggestions of creating publicly accessible externalities “just in case“ are not likely to have a fast short-term impact. Therefore, the following addresses costless possibilities for the administrative status quo that somehow address the mindset within the given limitations:

2.1.) Cross-border linkages as a tool to enhance domestic connectivity

Remarkably for the area under study, actors can participate in cross-border settings and meet others from their own Buzz. Stimulation of the domestic Buzz can, therefore and seemingly paradoxically, happen through cross-border events. With local international initiatives having an initial "national" local effect first, actors can integrate into a distinctive network without bearing the opportunity costs of less connectedness with their "own" or domestic network. In that regard, and in contrast to an initial, implicit hypothesis, transnational dynamics seem to be most vital among internally well-integrated ecosystems. As an indirect effect of the cross-border cooperation, the integration of actors on the respective national sides first decreases the transaction costs for the other side to access. Due to both, external transaction and domestic opportunity costs, intra-state networking is more likely to happen among already well connected (internal regions). However, they can also be employed as a tool for overcoming internal barriers and the indirectly decreased opportunity costs to engage across borders.

2.2.) External Global Pipelines to enhance connectivity across the state border

To overcome this, „genuine“, external linkages are an answer, broadening the scope not to connect to another contact, but to the neighbouring nexus of linkages and its implicit access to global resources. Using the stimulating force of external pipelines for the domestic Buzz then can become a tool of regional policy. There have been examples that point in a similar direction, with trips to Silicon Valley and, Poland. They showed that the stimulating effect for the Local Buzz can contribute to building long-

lasting and self-maintaining Buzz-like linkages – on the domestic level. These can reflexively contribute to maintaining pipelines against lower transaction and opportunity costs.

While both regions along the border have been active in expanding their network to fruitful regions of cooperation, the potential for simultaneous transnational Buzz should be automatically considered (and also possible EU-funds that might go along with that). This is especially given the supposed effect of relative (territorial) identification and interdependence. A common ecology can appear, when actors from Twente and the Westmünsterland are temporarily similar framework and confronted with global and comparably less familiar Pipelines.

As a general concluding remark, the thesis identifies a certain density of overlaps as crucial to developing a common communication ecology within and across borders. Given the limited tools and capabilities of regional policy makers, concentrating on the (indirect) stimulation of cross-border linkages in selected, especially promising sectors can thereby multiply the permeability of the CBA´s communication ecology.

17. CRITICAL DISCUSSION OF THIS RESEARCH

As could be shown based on the saturated research, the empirical evidence gathered is valid to make substantial claims about the Local Buzz in the Entrepreneurial Ecosystem as the object under study. Naturally, the research does not include all possible actors within and is limited to patterns that seem generalizable based on the triangulation of sources. For some crucial actors, such as the chambers of commerce (the German Industrie- und Handelskammer, the Dutch (equivalent) Kamer van Koophandel and the industrial networks of Twente (e.g. Industriekring Twente)), only little empirical evidence is present. In line with the focus on a start-up gazelle based Entrepreneurial Ecosystem[141], it yet limits the research in its general validity. The generated knowledge on mechanisms in the "special" cross-border region, however, has to consider this limitation and might undergo possible refinement with increasing empirical insight.

17.1. Theoretical and conceptual research object

The most visible and prominent border in this research should be understood in the light of domestic borderednesses, as a gradual accumulation rather than an essentialist restriction. However, this is only generalizable for CBA in states that are commonly embedded within the framework of the EU-"single market" and its unifying common legal framework.

Addressing such a complex issue naturally allows for various paths to take within the research process. Obviously, the cross-border area Twente/Westmünsterland is not the only possible object. It should not be forgotten, that another CBA could have been chosen, with other peculiarities. Furthermore, the regional scale as such is not obvious for a network analysis, since empirical evidence also point on the importance of much smaller locational settings such as a shared working space for networking effects. Within such a region as taken, alternative networks can be focused to extrapolate mechanisms of borderedness. Other angles might be fruitful to elucidate new aspects, verify claims made and nuance their general applicability to similar cases. Instead of the Entrepreneurial Ecosystem, also a narrowing down on the potential group of e.g.

[141] Patterns of more established (industrial) companies were purposefully not included in the underlying pieces of evidence.

German students in Twente can allow for a more clear-cut definition of the targeted network.

Also, the object within the area chosen is not the only possible one. By doing this research in an inner-European CBA, elaborating on the Local Buzz addressed (the transnational, cross-border) pipelines without making them an explicitly focal topic. This focus is not an absolute truth for research on this topic but can be changed given the initial importance of the Global Pipelines for the local (territorial) Buzz to come into existence. Therefore, also, e.g. the non-cross-border and non-local pipelines could be the focal point of another research. As this paper has argued, the transnational linkages that mostly qualify as pipelines, mutually buzzing due to their proximity and density, could be an explicit and bilateral research focus (as compared to the more collective angle of Local Buzz). Going so far as of implementing research on each actor´s respective non-Buzz business partners, it in the same manner of very open descriptive analysis, appears very time consuming (cf. method discussion). In this research, therefore, the challenge was circumvented by deriving the wider global network of pipelines through an elaboration on the Local Buzz with a focus on the inter-firm [5] relations.

In terms of transnational Buzz among the Entrepreneurial Ecosystem, being only very latent and "invisible", the descriptive analysis could alternatively also start not with another object, but one step earlier in the regional communication ecology, at the rather hierarchical intra-firm level. As an example, identifying possible overlaps of linkages and people in companies of both, The Netherlands and Germany, could lend a fruitful angle on cross-border Local Buzz as an externalised governance mechanism of firms.

Also, labour market is a relevant dimension that very directly shows (contracted) interdependences. The interesting discussion can be found in the appendix A8, pp. 196 ff. Although a prominent research focus in CBA's, the novelty of this chapter is in regarding the labour-market effects on connectivity, beyond "merely" [5 - 6] financial interdependences.

17.2. Research field

The regional field of this research is to be understood as a potentially global network anchored in a concrete space. It thereby does not conflict with the predominant global scale steadily crucial for start-up gazelles (cf. 28:30, Bahruz Mammadov Interview), but is rather a way to approach it.

Within the territorially oriented approach, the region as the territorial scale is not to be taken as an exclusive approach to territorially bound economic development. As the internal borderedness has shown in the field, the region is not a homogenous entity, but has (sub-)divisions. On the meta-level of this research, I was personally linked to a micro-geographical Buzz in the physical limits of the (wider) corridor of my internship organisation Kennispunt Twente. However, especially the events and interviews themselves have proven the regional scale based on its functionality an effective mode of analysis. In this context, also a larger office desk for example, was reported as the relevant scale for successful Buzz-like networking (Benjamin Bloch, Produktivhaus Münster). It can involve central meeting spaces such as coffee-kitchens to "really gather momentum" (ibid.) as a communication ecology.

Especially when evidence on regional functionality is poor as in the research at hand, however, the precise demarcation of the regional scale, remains questionable. Due to the crucial aspects of (possible) face-to-face contacts among actors facilitated by similar (administrative) frameworks, in a circle around Enschede, a field was chosen. In Germany – it does not include some visible knowledge hubs, as, e.g. the more distant Münster[142], which could certainly constitute an additional field of research. The interest in the seemingly rural, direct "hinterland"[143] was initially justified through it being an area on which Enschede, as the closest regional centre, was expected to have "gravitational" appeal. Surprisingly in this research – and with little visibility for many actors in Twente - this "hinterland" displayed a functioning and distinctive network with visible leadership and own resources that works with great autonomy from the German regional centre in Münster. Of special interest are the major software

[142] The increasingly intense partnership of Münster and Enschede can be at stake when shifting the regional scale.
[143] The Westmünsterland thereby is not without alternative on the scale of the nearby "hinterland", with e.g. the Grafschaft Bentheim and the Kreis Steinfurt being another possible focus region for the Enschede-based, Twente ecosystem.

firms of this border adjacent region[144] which could constitute the base of a narrower demarcation of the field.

This research took the classifications of face-to-face contacts and did not add a further specification. Assuming networked- and borderedness in CBAs in more general however, it has to be considered that the circumstances for literal "interfaces" can differ among inner-European CBA, with implications on their Economics of Externalities. Within the regional field, the "likelihood" of transnational face-to-face contacts based on physical proximity in the field can range significantly:

> Being "possible" or "easily possible" in Twente/Westmünsterland, it is "unavoidable" in the Nieuwstraat/Neue Straße area of Kerkrade/Herzogenrath and even more so in the multiple-exclaves of the Dutch/Flemish Baarne.

With the same categories that underlie this research, It should be considered that also respective common frameworks moderate the likeliness of such encounters. "Integration leaders" such as the Euregio with Twente and the Westmünsterland differ from CBAs without (any or longstanding) integrative dynamics.

> Furthermore, complementary cross-border appeals are relevant, such as attractiveness based, e.g. on housing prices in the Danish/Swedish Oresund region or common research institutions and student dorms such as in Frankfurt (Oder) and Slubice on the German-Polish border.

All of these dimensions mentioned thereby differently moderate the governance mechanism of untraded externalities, in a reflexive process with the mechanism of markets and the underlying hierarchy of (territorial) administration. Given the links of the regional framework to the entrepreneurial systemic conditions, even actors beyond the classical scope might have moderating functions in the region. The CBA under study is especially distinctive with hosting a large minority of Syrian Christians on both sides of the border, posing another question mark to a mere subdivision in Twente/Westmünsterland embedded entrepreneurs.

[144] Further research, therefore, could focus on the interconnections of these clustered actors with truly comparable ones in Twente. To research on the “Entrepreneurial Ecosystem” was a rather broad field to identify Local Buzz in. However, it had its rational in a) sparse overarching data which hardly displays (potential) cross-border patterns) and b) in the explorative nature of this research on the broad concept of Local Buzz.

17.3. Theoretical approach and conceptual research design

As a nexus of theories on Economies of Externalities with a clear analytical dichotomy, the choice of Local Buzz and Global Pipelines as predominant theory proved effective. It should be mentioned that both, however, presuppose a certain level of connectivity, in a common contrast to non-Buzz and non-Pipelines that proved frequent in the field.

Also, the operationalisation of the "gaseous" Local Buzz for the specific needs of this research was a challenge. Possibly, it could have a multiplicity of focal points. To keep this research efficient, therefore necessarily, not all aspects are covered. As an example, the research with knowledge as an externality to indicate linkages only addressed orienting knowledge or collaborative knowledge. In contrast (and due to practical restrictions) no evidence was gathered on highly sensitive, "hot" and secret knowledge, and its governance in the Buzz. This limits the claim of this research, to identify and fill conceptual gaps in Bathelt et al.'s (2004), aware that the way displayed is not exclusive in providing a more tailor-made and refined conceptual vocabulary for regional economic development in border regions.

17.4. Methodological choice and restrictions

The vagueness of the immaterial research object also constitutes a critical aspect for the methodology of this research. Although applying objectifiable criteria, the workload was high, given e.g.

- very sparse comparable data for the cross-border-area,

- the twofold methodological approach of combining objective collective "mass" observation with in-depth interviews, multiplied by the necessity to be aware of both, "normal Buzz" events and explicit cross-border events.

The effort made is only justifiable in the light of the research problem’s high social relevance that is reflected in concrete policies and policy attempts. To cope with the complexity of the field, methodologically I drew on the initial research-Buzz of my internship organisation that is in itself nationally bordered, through which a snowball and filtering mechanism evolved. Remarkably, therefore, the initial Buzz at Kennispunt

Twente, for me as a German, was much more natural than the one in Germany[145] that I had to purposely seek and establish with the (effective) support of this initial Buzz, and the following Tobit.CampusTage[146].

In that way, I was subjected to similar processes of orienting in networks, something that can also be assumed for other actors in Twente and the Westmünsterland. Not only on the meta-level of this research, but also in the field, my personal role in the Entrepreneurial Ecosystem was indeed “enacted”:

> As stated, in several situations while researching and talking to actors, I was enacted as an unintended cross-pollinator or source of orienting knowledge.

The influence of "being there" is certainly undisputed and important for generating as well as filtering information and gaining the empirical evidence of this research (cf. housekeeper to share insights from her husband working in Germany, "discovering" firms in town, ability to conduct the research at low costs). In this context, a possible bias for nearby and "researchable" actors is possible. However, in that way, the area covered in this way is automatically based on a functional daily dimension of the area. Additionally, the research is largely in line with the relevant business area that most actors in the field displayed (with visual evidence from maps of the interview partners as displayed on pages 117 ff).

As an enacted cross-border actor myself, and necessarily facilitated by manifold "coincidences" (that were, however, actively sought and stimulated through various personal and public involvements), this research does not claim to display an objective reality. Naturally, as I predominantly did qualitative research, I acknowledge the subjectivity of my data generated.[147] Although descriptive, this research made an effort to display not only collectively observable linkages at the events under study, but also to demonstrate the underlying relations in the CBA. Since these where often latent, the

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[145] Additional reflection on this topic: Although I have a German background, my lens at looking at the Region of Twente and its surrounding areas is highly “Dutch-influenced” (in terms of my working environment, the literature I got familiar with in the cause of my study at Radboud University Nijmegen). It is counterbalanced this with a special afford to understand the respective German framework and how the region of Twente, its economic development chances and innovation environments are perceived there (intermediary products during the internship).

[146] This can be seen as another example for that that the borderedness of governance mechanisms in the field under study is not essentialist, but rather a matter of intervening opportunities and overlaps.

[147] Being as descriptive and objective as possible, I indeed remain biased due to me neither a complete outsider without culturally related pre-assumptions about the functioning nor the invisible fly on the wall that would not alter any of the research outcomes.

interviews methodologically offered various angles to invite the actors to go deeper with their specifications. This was done without directly or implicitly imposing it to them (cf. interview guideline appendix 6), yet in order to "squeeze" the seemingly sparse cross-border snapshot of linkages from the participants. Building on the explorative insights of this research, a following up could consider the methodological tool of focus group interviews, to understand and access especially latent cross-border potentials in a more condensed way.

Although having a methodological "recipe" formulated to address an apparent conceptual gap, my research was a fluid and explorative process, highly based on personal contacts. “Coincidences“ in that way were stimulated through active regional inducement of myself. Therefore, the research is not entirely replicable in the same way and bumpy (desire) path that it took. The reflexive process to come to the conclusions at hand is, however, made transparent by description of the events, validated through the use of different sources and made traceable in interview-recordings (see additional appendix to this thesis).

Despite its necessary personal note, this research yet claims to be inter-subjectively understandable and transparent in its way of generating data, framing evidence to common findings and conclude them about the research question.

Naturally, other methodologies are possible to approximate the answer on the research question in a highly unfeasible research object. Focus group discussions combine insights of both, participant observation and interviews, although not allowing for the role of the fly on the wall. For the future however, this methodology certainly allows to unveil the research area’s linkages in a more collaborative process**.**

18. ACADEMIC RECOMMENDATIONS FOR FOLLOWING RESEARCH

Describing the characteristics of Local Buzz in the area under study in an explorative study, many new questions appeared. While this research is limited to describe the likely mechanisms that facilitate to manage "resources", they remain mostly insufficiently descriptively mapped, let alone understood. To support the claims of this research, more deliberate empirical evidence is fruitful. This explorative study can therefore be given follow-ups on a horizontal level with 1) other border regions, but also on a vertical level 2) going deeper to some of the dimensions that have been identified here respectively testing the underlying assumptions.

1) It is easy to identify other of the many border regions that can be researched from the angle of these research results. Although examples are rich, the specificities of this research should be considered, including it being within the European Single Market framework, with an open border for decades.

2) Very banally, a concrete way to vertically go deeper in the same field and academically address knowledge and/or conceptual gaps is to establish more data on the CBA from a functional point of view. This can include to combine existing data in a comparable framework and to consequently gather underlying data in a way that is sound and consistent across the significant (administrative) threshold. Concerning the Entrepreneurial Ecosystem thereby, addressing orienting knowledge on the educational and research infrastructure in comparable terms is a concrete first step that can help to practically increase agility of both researchers *of* and actors *in* the field.

On these statistical grounds, research more easily can address categories which evolved in this research but remained either unsolved or abstract yet. For the first, evidence can be generated how many firms have interfaces in the CBA under study, reaching along the whole measuring tape from "[0] knowing that" to "[7] external interdependencies". The underlying research offers many stepping stones for such a research and delivers qualitative categorisations to be explored in their extent. Quantifiable ways could be developed to let actors estimate to, e.g. let them concretely report on the value of cross-border [4] transactions, or to monetarise the more abstract value of belonging to certain Buzzes (membership fees can give an indication). More

specifically within the Local Buzz, estimating the effect of transnational linkages on internal effects could employ the analytical tool of extensive and intensive "opportunity costs" in cross-border collaborations, implying a scepticism towards a boundless buzz. The question, if lower density might, however, be outweighed by a greater quality of transnational linkages could thereby be addressed. On a wider level, the role of non-regional pipelines can be focused in its significance for the Local Buzz and elaborate on the connections that can be characterised as complementary, but difficult to establish and maintain, and how the absorbing translates into a Local Buzz.

To generate more foundational evidence on the borderedness of the area under study, a focus can be chosen on groups with a likely (even if latent) cross-border orientation, e.g. German alumni of the institutions of higher education in Twente, living in the (West-)münsterland. Analytical beneficial from the angle of the wider regional framework conditions but rather unorthodox, it appears fruitful to address ethnic minority groups in the Dutch-German CBA, the border can supposedly more likely be de-constructed in its causalities rather than its coincidental characteristics. Especially the comparably vast and visible Syrian Orthodox community with its (only European) bishop´s seat appears very prominently and could display the bureaucratisation of abstract models in a concrete border case.

The state border in the Entrepreneurial Ecosystem in this research has been characterised as multiple overlaps of borderednesses that only gradually differs from other limitations of the domestic, territorial administrative, institutional and personal level. Research on the (dynamic) finiteness of linkages can be fruitfully done in fields with less prominent separation lines. As a territorial example, patterns in the internal border area of the German federal states of North Rhine-Westphalia and Lower Saxony can be focused and compared to the results of this research. With more analytical depth on an institutional level, the description of inter-institutional linkages could be described, e.g. in the field of regionally proximate universities such as the University of Twente and Saxion University of Applied Sciences in Enschede.

As this research has displayed the network borders in Economics of Externalities as a gradual overlap, "border research" can be conducted in basically every field of Economic Geography. The extension of this research should then be especially sensitive for the manifoldness of (also domestic) connectivity margins. On the other hand, research across or adjacent to state borders offers a very fruitful field to check assumptions on causalities rather than their coincidences. A particular urgency in this appears from the partial uncertainty on physical proximity and its causal respective coincidental role(s) in regional "sticky" development and competitiveness.

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APPENDIX

A1. Observations

In-Depth Event Cases of Tobit.CampusTage, the Pitch that B*tch event from Hardstart at the UT and the Bus to the Hannover Fair as exemplary illustrations of intermediate products from the observations of events and the evolving research snowballs from these (further intermediaries are available on request, also in their chronology from more impressionist, non-judgemental to category driven products).

A.1.1. Tobit.CampusTage in the German Ahaus. Vivid Buzz in the hypothetical Westmuenster-"hinterland"

This event, in short, displays a strong interdependency of the firm with its nearby region (that basically equals the West-Münsterland). For Tobit, it is the occasion to successively get feedback on and market their products and firm, among their (vertically integrated) dispenser reaching beyond the region, but also at the (administrative) and very (sub-)regional ecosystem that shapes their business opportunities. For this ecosystem in return, the three-day event is a welcome opportunity to network in an atmosphere that is relatively informal (informal address with “Du“ is predominant) and shaped by long-term [3] interactions. With hundreds of visitors, through its strong regional focus and being twice a year, it appears as a half-anonymous community: Not as close as to estimate everyone's role, but close enough to mark people in the case of undesired behaviour. Interestingly, also outsiders appear legitimate to enter, visibly, e.g. in some interested children and youngsters, but also adults that seem to be interested in the technical innovations (rather than in the network).

Insiders seem to have access to the free tickets, spread, e.g. through mailing lists of the events partners (and saving the 90 Euros of costs for the three days ticket). A necessity to fruitfully enter the event for sure is to know German, even though with commonplace English terms. This was the exclusive language used in all of the sessions and conversations that I observed in three days, with the exception was a MAVO-class in German from Enschede-Zuid, which attended two sessions. Regarding a buzz, the event is a welcome opportunity to deliberately network with

a very broad goal. Especially in the session, the main knowledge overspill was on how regional actors deal with the global (but nationally translated) challenge of digitalization. The Tobit.CampusTage have been initial for the research´s snowball to evolve. In frequent situations afterwards within the Westmünsterland (FreshBuisness AIW, WFG Ahaus) I could see a central position of this firm within the network coming back.

The TobitCampusTage appear as a crystallization of a Local Buzz, also with vertical integration, having the function of an “Urban Lab“. Successively, the days are used to get feedback from the outside, to market and check own developments in a first save the environment. It can be understood as a nod in a (frequent/daily) urban system. Centrality and Cohesion are both present there. Short ways are named as a locational factor for Ahaus. Tobit has spin-offs in the form of gastronomy but is also horizontally cooperating with local champions as, e.g. K&K supermarkets from Gronau.

The language is exclusively German, even when a lot of English terms are included (“labs“). There is cohesion, long-term acquaintances on a short distance, “man ist [oft] per "´Du“, which also brings a certain danger of excommunication, or at least the danger to not feel welcome anymore. Density: With a broad definition of being related to each other, the network here is surprisingly dense. Centrality: Except for Tobit, Shopware and D.velop seem to play a crucial role in that. There is also a legitimation for externals to be at Campustage, e.g. the interest in technical innovations (e.g. for children, but also beyond). Thereby, the Campustage is a place that is explicitly frequented to get into a wider network to get out of your own enterprise and see something new[148], used to exchange a lot of more-or-less knowledge as a first orientation anchor and gratefully used for networking (entrepreneur from Vreden, in conversation afterwards).

There is no apparent transnational dimension visible and hearable in the presentations I visited (except for one MAVO - class with their German teacher). However, asking actors in detail, another latent dynamic becomes observable:

[148] “um mal aus unserem eigenen Betrieb rauszukommen”.

Münsterland e.V., want to make contact with Kennispark, P17 super active, Rheine Handwerker has son studying in Enschede, speaks Dutch himself. Also, the woman from Ahaus e.V. had been studying in Enschede.

A1.2. "Pitch that bitch" from Hardstart UT. Constitution of the university-based network of early starters

Platform to share also vague ideas can be under the gentlemen's agreement if wished so. Related start-ups with the webpages in English and partly in Dutch. Supported by typical ecosystem: Partner Ondernemersloket, Event partner: Dutch student investment fund. On their website about networks “We are the party who is in touch with all `mature` entrepreneurship organisation in the region [and] can help partnering up with the Province of Overijssel, with the Ondernemersloket Enschede, with Kennispark, with investors etc.

“The Dutch investment fund themselves is again with shareholders of: UT, Saxion, Student Union Ut, other partners NovelT, Hardstart, Accenture innovation awards, Twente innovation events, EGSEA, Moneybird

A.1.3. Bus to the Hannover Fair, from Enschede/Gronau. From official shake hands to class-trip atmosphere

This day trip, lasting from six o´clock in the morning to nearly midnight, displayed how the physical framework of a bus and the impressions of external contacts on a fair in cross-border perspective can gradually change a rather formal start to a temporarily limited ecosystem with knowledge overspills. It includes participants from various areas that can be vertically integrated but are not necessarily in the same sector (overarching is, however, some commonalities with the topics at hand, but also a keen technical interest sees legitimate). What has to be remarked, however, is that the network from the bus is not inherently self-constituting, but initiated by Ondernemersloket Enschede, meantime with the support of its German equivalent WFG Gronau. After having more members in the last years, after very

limited possibilities in marketing the event (and in the fore math of the Dutch national holiday Koningsdag), only fewer people participated this time. Several, however, participated repeatedly, and some called their employees to do so, too. A very concrete example could be observed of how physical proximity can benefit integration into networks: Some Dutch participants from Enschede live in the district Glanerbrug, being closer to the German (and later) place of departure in the centre of Gronau than to the Dutch place of departure in the West of Enschede. This means that these mixed with the German group first before entering the bus.

At this event, I also got to know that the Techconn Event, planned for 15th June in Hengelo, the Netherlands, apparently chose a holiday in the German federal state of NRW (the Catholic holiday of Corpus Christi, in contrast to the predominantly protestant Lower Saxony), which indicates a missing knowledge overspill in this regard.

A2. Pilot: Estimation of distances during the events.

A pilot survey was conducted in asking people to estimate distances in the nearby area. The nine German participants displayed a rather detailed knowledge in estimating distance and population of towns on both sides. However, places without an apparent function such as shopping (Enschede) train connection (Hengelo) remained as "black holes": Left blank, stated unknown, unrealistic and highly diverging estimations as e.g. for the Dutch Almelo and Haaksbergen (see ibid). Confirmed by statements of the Dutch interview-partners, the general orientation on a place and the “knowing that” [0] can translate into more business-relevant terms in the following way:

A qualitative example for the relevance of orienting knowledge in business-terms is Marco Strijks, elaborating on details about the Entrepreneurial Ecosystem in cities that he regularly visits for free-time activities, such as Cologne and Düsseldorf, in contrast to the much more proximate Ruhr-area without a free-time function. Similarily, this is also for Bahruz Mammadov, whose persisting friendship with a former study friend in Münster at least lets him recognize Steinfurt as a (familiar) place from travelling by train (0, knowing that). Seemingly, this also generates some interest in the scientific institutions present there (cf. additional appendix to this thesis.

Although cross-border orientation therefore coincides with proximity, it appears causally linked not to the mere distance, but to the functionality of a place. Thereby, it is much more punctuated compared to an apparently more homogenous geographic orientating knowledge in the domestic field.

	Distance	Time of Travel	Inhabitants
Enschede			
Hengelo			
Ahaus			
Münster			
Coesfeld			
Nordhorn			
Berlin			
Lingen			
Osnabrück			
Almelo			
Steinfurt			
Haaksbergen			
Gronau			
Amsterdam			
Bocholt			
Dortmund			
Borken			

A3. Initial interview Guiding Questions (translated to English), facilitated by additional map templates A.3.1., A.3.2. and A3.3.).

The interview form underwent minor modifications during the process, yet around the main body that is displayed here. These include e.g. a preparation process for each interview-partner and an estimation of how abstract terms can brought to most appealing everyday language.

The variety of questions serves as a possible template to extract and extrapolate as many answers as possible from various angles. It is not assumed, that the interviewees are necessarily aware of their network-scope and -limitations. Rather, the interview questions invite them to a -criteria based- endeavour of the three research categories in their own networks. Accumulated from all interviews, this serves as a founding stone to develop a terminological and theoretical, continous refinement.

A3.1. Interview Questions to approximate Network-scope and limitations:

Very open: [as with all questions, to avoid pre-supposing a borderedness along national lines, cf. p. 11]

1. What cross-border linkages do you have, of Buzz/Pipeline characteristics? [being shortly introduced, cf. conceptual table, cf. p. 30 ff]

1.1. Who do you get knowledge from, and who do you spill knowledge over to? [on different levels of abstraction, from orienting knowledge cf. p. 81ff, on other actors in the field to "hot" scientific research]

1.1.1. Please elaborate on intra-firm and inner-firm knowledge spill-overs [optional]

1.2. What meetings do you attend without a specific objective, yet the broader expectation that it will benefit you in the one or other way? [cf. temporary Buzz, Bathelt & Maskell, figure 9]

Semi-structured: [to reduce the abstraction level towards more familiar terms from the interviewee`s business environment]

2. Borderedness

2.1.1. Who could you protect against traps in the business everyday life? [evolving from the frequent repetition during observations, that effective filters for possible challenges is crucial to get an enterprise off ground. Addresses the category of knowledge externalities, cf. p. 30 ff]

2.1.2. How do you share your ideas with, who gives you feedback? [more concrete questions which addresses the category of knowledge externalities, cf. p. 30 ff]

2.1.3. In who would you invest, in which area do you have smart capital to share? [category of knowledge externalities, possibly also category of interdependences, cf. p. 117 ff]

2.1.4. Where, in which area, do you have an estimation of what is normal or out of order? [addresses the category of linkages and extrapolates acquired knowledge externalities, especially supported by the maps]

2.1.5. Who are you a reference for? Who is a reference for you? [addresses the category of interdependences and limitedly knowledge externalities]

2.2. Where is an excommunication possible? [indicating strong group cohesion that could signify a strong presence of linkages and interdependences, observable during events e.g. in strong laughter or the impression, that one is remarked as a newcomer/outsider]

2.3. Marketing range for sponsoring, where do you reach people, through which networks are you reached yourself? [addresses the category of linkages, cf. p. 106]

Structured: [to manifest connectivity along concrete, objectifiable and measurable indicators]

2.4.1. Do you know Xing? Do you know Linkedin? How do you use it? [addresses the category of common (digital) frameworks that is a pre-requisite of Local Buzz, cf. pp. 84, 90]

2.4.2. Do you know any of the following firms Tobit / Shopware / D.velop / Opwoco? [tests the factual knowledge overspills and connectivity of actors in the

Twente entrepreneurial system, since the four constitute the pre-dominant references of entrepreneurship at all events visited, cf. Tobit.Campustage, publications in city halls and previous ad hoc interviews]

2.4.3. What do these terms tell you? "Exzellenzinitiativen", "Gründerschmieden" [test the factual knowledge overspills and connectivity of actors in the Twente entrepreneurial system, since these constitute two major initiatives in the publicly supported Entrepreneurial Ecosystem of the Westmünsterland]

2.4.4. Do you know Max Planck, Fraunhofer, Helmholtz, Leibniz? [tests the factual knowledge overspills and connectivity of actors in Twente, since these four constitute the major research centres for all of Germany, cf. desk research]

2.5. Do you know these events: Military Horse Riding Boekelo, Tobit.CampusTage? [test the factual linkages since both events constitute crucial networking opportunities that are well-known in the respective ecosystems of Twente and the Westmünsterland, cf. own research buzz]

Semi-Structured: [to address the state border more specifically in order to harvest concrete insights on this important research objective. It is at the end of the questionnaire to avoid pre-assumptions. Cf. e.g. p. 126 ff]

3. Permeability of the state border

3.1. Which contacts are possible from Twente directly with Germany (or versa, Westmünsterland to the Netherlands)? [What are the most visible cross-border actors? Who increases the network-scope?]

3.2. Which contacts through partners/companies/institutions at the other side are indirectly possible? [What is the (domestic) connectivity to reach visible cross-border actors?]

3.3. Which contacts do you have in Germany/Netherlands respectively (just right over the border). Where do you feel at home? [allowing for a more sentimental angle on the category of linkages, connected also to the widest range of Stam's framework conditions]

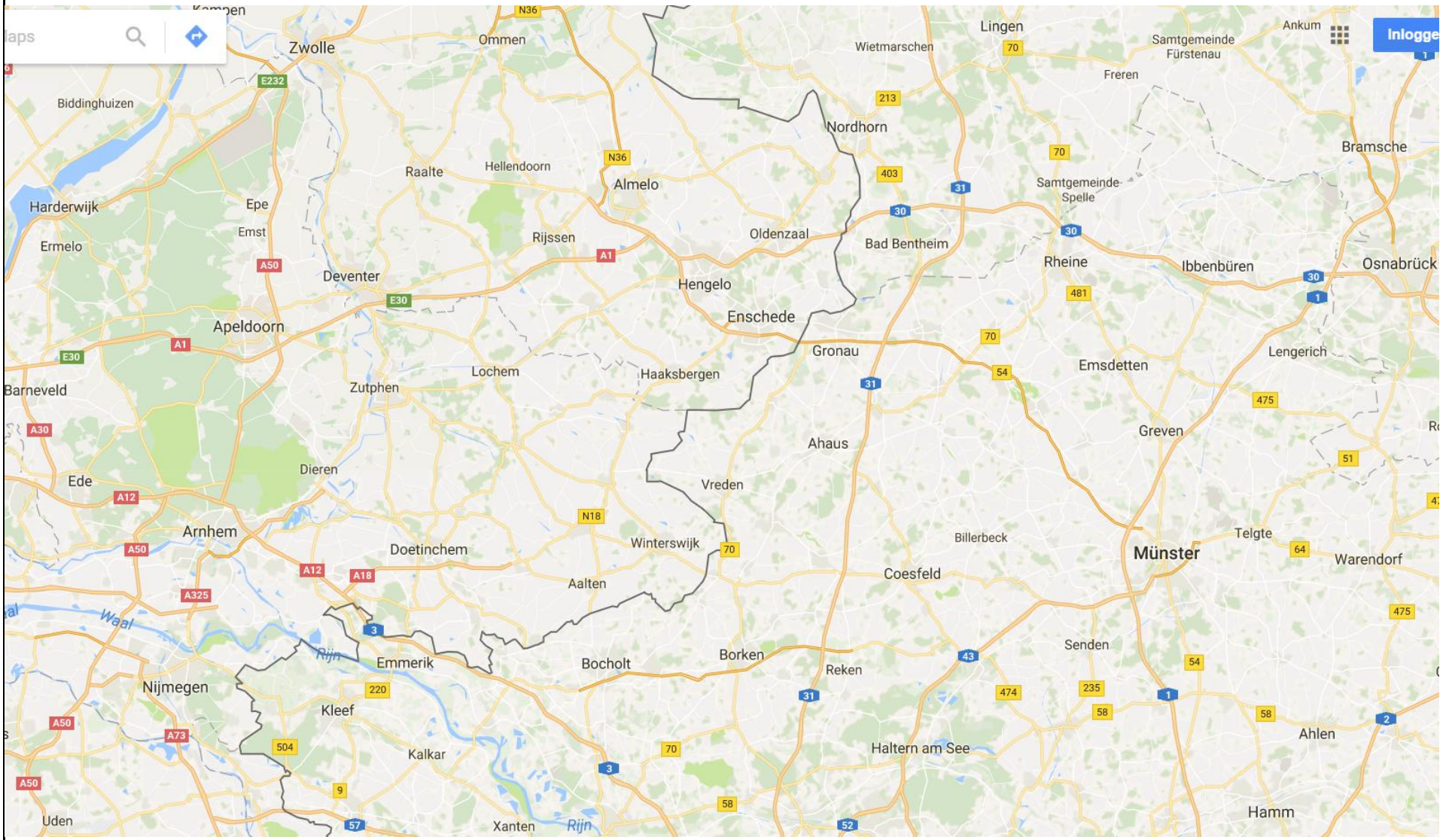
3.4. Where do you feel interdependent with? [explicitly addressing the research category of interdependences, cf. p. 33]

Open:

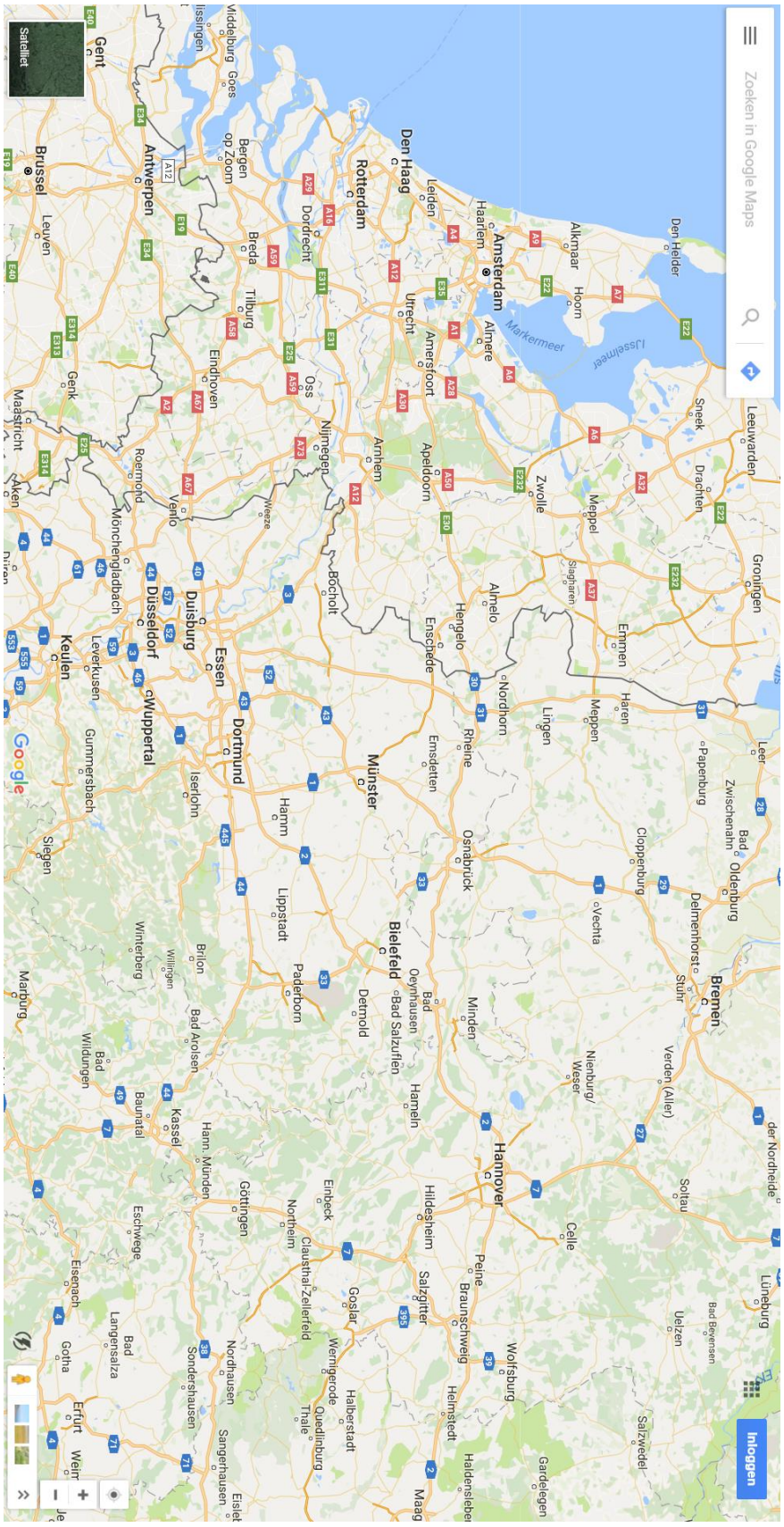
Imagine you are visited by someone from a) the Netherlands b) Germany c) Poland, China etc. Where can you tell something about, where do you have an edge in knowledge? [addresses especially the categories of knowledge externalities and linkages, meant to re-focus from a mere opposition between the domestic and the border-adjacent neighbouring region. Aims to give the wider picture and potentially extrapolate knowledge and connectivity that had been disregarded on the smaller regional scale]

A.3.1.1. Facilitating maps

Maps facilitating an estimation of the network-scope (and limitations) on varying regional scales. They are all to the possible disposal of the interviewees. In order to produce some concrete and unfiltered findings on the regional network-scope and limitations, interview-partners are motivated to take inspiration from and manifest their words on the maps.


Zwolle
Ommen
Wietmarschen
Lingen
Ankum
Samtgemeinde Fürstenau
Freren
Biddinghuizen
Nordhorn
Bramsche
Raalte
Hellendoorn
Almelo
Samtgemeinde Spelle
Harderwijk
Epe
Emst
Rijssen
Oldenzaal
Bad Bentheim
Ermelo
Rheine
Ibbenbüren
Osnabrück
Deventer
Hengelo
Enschede
Apeldoorn
Gronau
Lengerich
Emsdetten
Barneveld
Lochem
Haaksbergen
Zutphen
Greven
Ahaus
Dieren
Ede
Vreden
Arnhem
Winterswijk
Billerbeck
Telgte
Münster
Warendorf
Doetinchem
Coesfeld
Aalten
Waal
Rijn
Emmerik
Bocholt
Borken
Senden
Reken
Nijmegen
Kleef
Ahlen
Kalkar
Haltern am See
Uden
Xanten
Hamm

A3.2. The wider regional scale.


Satelliet
Zoeken in Google Maps
Inloggen
Amsterdam
Rotterdam
Den Haag
Utrecht
Antwerpen
Brussel
Gent
Eindhoven
Tilburg
Breda
Dordrecht
Leiden
Haarlem
Alkmaar
Hoorn
Den Helder
Almere
Markermeer
IJsselmeer
Amersfoort
Apeldoorn
Arnhem
Nijmegen
Zwolle
Meppen
Leeuwarden
Sneek
Drachten
Groningen
Emmen
Almelo
Hengelo
Enschede
Nordhorn
Lingen
Rheine
Münster
Bocholt
Venlo
Roermond
Mönchengladbach
Düsseldorf
Duisburg
Essen
Dortmund
Wuppertal
Keulen
Leverkusen
Gummersbach
Siegen
Iserlohn
Hamm
Lippstadt
Paderborn
Detmold
Bielefeld
Bad Oeynhausen
Bad Salzuflen
Minden
Osnabrück
Emsdetten
Cloppenburg
Vechta
Delmenhorst
Bremen
Papenburg
Bad Oldenburg
Zwischenahn
Leer
Nienburg/ Weser
Verden (Aller)
Soltau
Celle
Hannover
Hameln
Hildesheim
Peine
Braunschweig
Salzgitter
Wolfsburg
Helmstedt
Lüneburg
Uelzen
Bad Bevensen
Salzwedel
Gardelegen
Haldensleben
Goslar
Einbeck
Northeim
Göttingen
Hann. Münden
Kassel
Baunatal
Bad Arolsen
Brilon
Winterberg
Willingen
Marburg
Bad Wildungen
Eschwege
Eisenach
Gotha
Erfurt
Bad Langensalza
Sondershausen
Nordhausen
Sangerhausen
Wernigerode
Quedlinburg
Thale
Halberstadt
Ilmenau
Meiningen
Suhl
Coburg
Bayreuth
Hof
Plauen
Zwickau
Chemnitz
Dresden
Leipzig
Halle
Magdeburg
Dessau
Wittenberg
Cottbus
Frankfurt (Oder)
Berlin
Potsdam
Brandenburg
Stendal
Schwerin
Rostock
Wismar
Lübeck
Hamburg
Neumünster
Flensburg
Kiel
Oldenburg
Wilhelmshaven
Emden
Aurich
Norden
Leer
Groningen
Assen
Emmen
Meppen
Lingen
Nordhorn
Enschede
Hengelo
Almelo
Zwolle
Meppel
Steenwijk
Kampen
Deventer
Apeldoorn
Arnhem
Nijmegen
Wageningen
Ede
Veenendaal
Amersfoort
Utrecht
Hilversum
Amsterdam
Haarlem
Leiden
Den Haag
Rotterdam
Dordrecht
Breda
Tilburg
Eindhoven
Helmond
Venlo
Roermond
Sittard
Heerlen
Maastricht
Aken
Hasselt
Genk
Leuven
Brussel
Antwerpen
Bergen op Zoom
Middelburg
Vlissingen
Goes
Gent
Oostende
Brugge
Kortrijk
Doornik
Mons
Charleroi
Namen
Luik
Verviers
Eupen
Sankt Vith
Bastogne
Arlon
Luxemburg
Trier
Koblenz
Bonn
Köln
Aachen
Mönchengladbach
Krefeld
Neuss
Düsseldorf
Duisburg
Mülheim
Oberhausen
Bottrop
Gelsenkirchen
Recklinghausen
Herne
Bochum
Essen
Wuppertal
Solingen
Remscheid
Leverkusen
Bergisch Gladbach
Siegburg
Troisdorf
Bonn
Hagen
Iserlohn
Lüdenscheid
Plettenberg
Olpe
Siegen
Gummersbach
Meschede
Arnsberg
Sundern
Soest
Lippstadt
Warstein
Brilon
Winterberg
Willingen
Korbach
Bad Arolsen
Kassel
Baunatal
Hann. Münden
Göttingen
Northeim
Einbeck
Holzminden
Höxter
Paderborn
Detmold
Bad Salzuflen
Bad Oeynhausen
Lemgo
Herford
Bielefeld
Gütersloh
Rheda-Wiedenbrück
Warendorf
Ahlen
Beckum
Hamm
Unna
Dortmund
Lünen
Castrop-Rauxel
Herne
Bochum
Gelsenkirchen
Bottrop
Essen
Mülheim
Oberhausen
Duisburg
Krefeld
Neuss
Mönchengladbach
Rheydt
Viersen

A3.3. The regional scale in the national contexts.

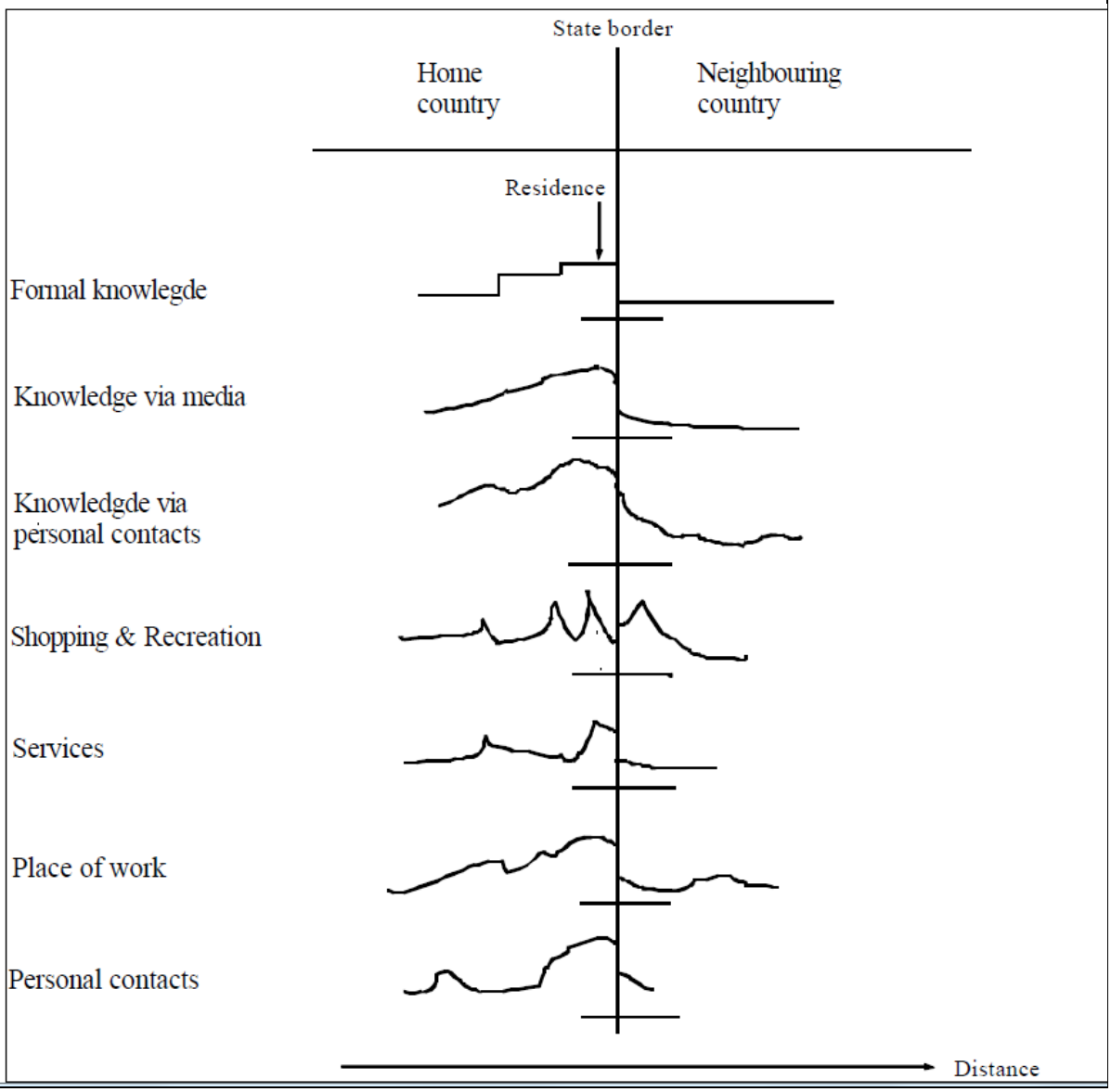
A4. Discussion on the regional scale, based on different modes of transports.

Relativizing the regional demarcation through different territorial functionalities (own elaboration).

While Dutch students, up to a study period of four years, have free access to the public transport within the orange area, equal to The Netherlands, this is only available at high costs or a part-time job of minimum 56 hours per months (Rijksoverheid 2017). On the other side, many German students can receive, via the University of Twente and Saxion, a so called “Semesterticket“ (Saxion 2017) for the German federal state of Nordrhein-Westfalen, within the green lines and up to the central station of Enschede (which is the only overlap in the whole area). Although this ticket is equally purchasable for German and Dutch students at 198 euro per semester, it in fact is predominantly used by the German students that partly originate in the area (Saxion 2017). This underpins, how the snapshot of a "region"

can diverge radically for individuals or a whole group of people, compared to the proposition that is analytically demarcated based on the criteria enumerated.

Theoretically grounding this argument, Lunden (1973, in Van Houtum 1998, Figure 2.4.) has hypothetically shown for border regions, identifying great disjunction across the border, but (even more) also among the respective dimensions of interaction. Formal knowledge, knowledge via media, via personal contacts, shopping and recreation, services, place of work and personal contact:



A5. Details on Perceived Complementarities in The Netherlands and Germany

The Netherlands	Germany
Abstract complementarity: **"Flexible"** (09-03-2017 Pieter Dillingh Kennispark Novel-T, Marco Strijks Interview, Peter Schildkamp, municipality of Enschede) Idcon product cooperation: Dutch design, German quality Short term, project cooperations "Fast" (Marco Strijks); "Oh, so you want to sign the contract? So did you already finish your coffee, then?" (Pieter Dillingh, NovelT, personal conversation) Fastly becoming an entrepreneur (Benjamin Beloch Interview): Just starting (16:20, Ulrike Wegener WFG interview), more ready to take risks (1:11:00, Ulrike Wegener WFG interview), "we will see, we´ll try and may fail" (Benjamin Beloch P 17, Interview)	**Abstract complementarity:** **"Routinised"** (Pieter Dillingh, NovelT personal conversation) Idcon product cooperation: Dutch design, German quality Long term, structural cooperation Entrepreneurs start more "gründlich" (= precise; Marco Strijks, Interview), invest time in a market analysis (Ulrike Wegener, Interview WFG Borken) and might not start, make a concept and see that lacking potential (Benjamin Beloch, P17, Interview)
Concrete complementarity: Personal data openness of customers	

It is ok to receive personal data (1:13:00, Marco Strijks Saxion interview), with a greater “openness“ (Benjamin Bloch, interview)	Data protection Tobias Holten (founder of Tobit.Software), copyright law in Germany The protection of data, many debates are highly deconstructive (“Vieles wird sehr schnell kaputtgeredet“) (Benjamin Beloch Interview)
Cf. Marco Strijks, Banks do not invest anymore (23:40, Marco Strijks Saxion interview)	Banks difficult in investing in gastronomy and retailers.
Limited complementarity of banks “Banks do not really invest anymore“.	**Complementarity of banks** Banks still have an important role in her business, starting from the "home bank" that is the first bottleneck to other (federal-state and federal) instruments.
Complementarity entrepreneurship: Could find a good model to earn money with (40:00, Egbert van Hatten Interview)	**Complementary sustainability:** More progressive in sustainable projects (40:00, Egbert van Hatten Interview)

Quite irrespective of complementarities of the individual actors, these overall “national” complementarities are reasoning to interest in the respective other. As a special opportunity in the proximate CBAs, some of these complementarities can be accessed through the tradable interdependence of a labour contract. As an example, a producer of furniture in the Westmünsterland used to employ Dutch individuals for innovative design. However, finding them assimilating quickly to the practice in the firm, he decided to hire five people at once to create a critical labour mass for Dutch design, which worked out (Peter Scheltinga, own Buzz Kennispunt).

Differences in the German and Dutch framework due to different market sizes
Market size and Global Pipelines. The different internal market size has manifold consequences for doing business cross-border. It influences the point of time in which firms are looking for expansion. Especially when talking about CBA´s, the time dimension should not be forgotten in geography. This is relevant to the product life cycle, due to higher uncertainty, businesses might enter tendentially later. In the very dynamic start-up scene, this is even more crucial, and so businesses might not have a chance without crucial plug-in in a cross-border buzz.

The time dimension is also relevant for the point and growth period in which firms are looking for cross-border cooperation. In Germany, this moment is late, but with a chance of still being in the region of origin. In the Netherlands, this indirectly happens pretty early trough the move to international hubs such as Amsterdam, with a rather a-regional but national approach in the aftermath, cf. global cities. In the Oresund region, between Denmark and Sweden, but also in the "Centrope" region (Haselsberger & Benneworth (2011) that has served as a benchmark, the differences in national Market size are much smaller. This has also implications for the critical mass of a region to become a start-up hub. In Germany, surprisingly, the threshold is lower, since international connections are not that crucial for medium-sized firms. Differences in the growth-period that start-ups move away. Different definitions of critical mass in Germany and the Netherlands. Thus, for different periods of time, the differences again coincide with German-Dutch, but are not essentially nationalist

A6. Harald Bathelt Email Contact (in German)

Personal email communication with Hans Bathelt as the main author of the main theory used for this master-thesis
His emails Bathelt himself state, that he does not know about an application of that bathelt, research has been done, but not with a cluster concept, but not conceptually, suggesting an institutional perspective, national regulations, language, company routines etc.

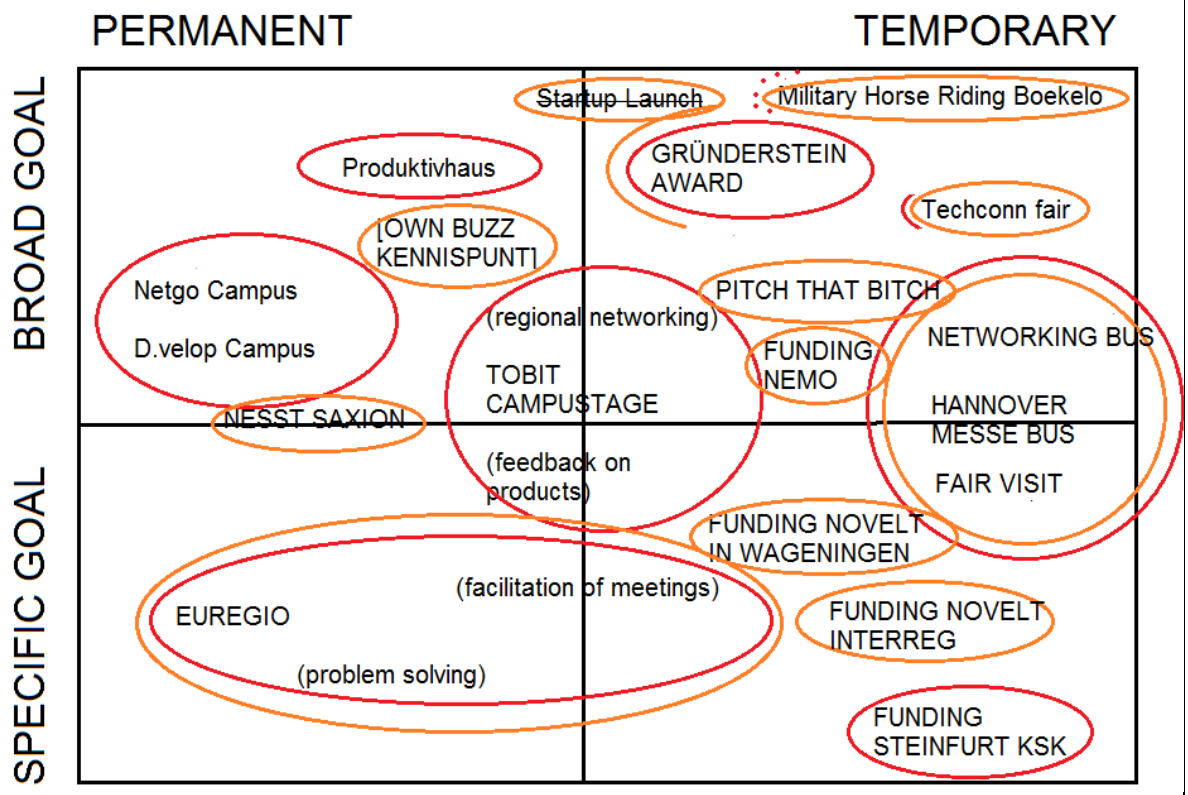
[27-02-2017] Herzlichen Dank fuer deine Nachfrage und die positive Rueckmeldung. Ich denke Clusterentwicklung in einem internationalen Grenzgebiet ist immer noch wenig erforscht und mir sind keine Studien bekannt, die sich konzeptionell damit auseinandersetzen. Michael Porter selbest geht mit Grenzen eher locker um und bezieht solche Konfigurationen explizit in seine Definition mit ein. Von seinen hunderten Fallbeispielen gibt es auch einige, die grenzueberschreitend sind. Ansonsten gibt es eine Reihe von Fallstudien, die deutsche Grenzregionen gemeinsam mit den auslaendischen Nachbarregionen untersuchen (jeweils aber nicht mit einem Clusterkonzept).
Das eroeffnet fuer deine Arbeit (womoeglich auch weitergehend) Moeglichkeiten die Urbertragung des Buzz-Konzepts in einen grenzueberschreitenden Zusammenhang einmal kritisch zu beleuchten. Ich wuerde hier vorschlagen eine institutionelle Perspektive zu waehlen und die Schwierigkeiten der Entwicklung von Buzz zu thematuisieren, wenn nationale Regulation, Sprache, Unternehmensroutinen, etc. sich stark unterscheiden. Ich glaube das Thema bietet viele Moeglichkeiten, aufzuzeigen unter welchen Bedingungen solche Clusterentwicklung moeglich scheint und wann nicht.

(21-04-2017) Wenn du ueber Start-Up-Finanzierung arbeiten willst, solltest du dich unter anderem mit den Arbeiten aus dem Bereich Entrepreneurship Studies befassen. Z.B. hat sich mein fruehererDoktorand Ben Spiegel mit aehnlichen Dingen in Kanada befasst (ich schlage vor einmal seine Arbeiten zu konsultieren). Da gibt es auch neue (modische) Debatten z.B. ueber Entrepeneurial Ecosystems

und grosse konzpetionelle Unklarheiten, wie diese in Verbindung gebracht werden koennen mit gaengigen Konzepten. Entrepreneurial Ecosystems unclear how to be connected with older concepts.

[06-03-2017] Zu deiner Frage denke ich es waere sehr gefaehrlich Buzz und Pipelines als ein allgemeingueltiges Modell anzusehen. Wie bei vielen Modellen und Konzepten ist auch hier der spezielle Kontext zu betrachen. In manchen Industrien ist Buzz wichtiger als in anderen und manchmal sind es vor allem Pipelines, die eine zentrale Rolle spielen. Aber dies unterschiedet sich nicht nur nach Industrien, sondern auch nach Regionen. Manche Regionen haben eine ausgepraegte Kommunikationsoekologie, andere kaum. Und in grenzueberschreitenden Bereichen kommt noch hinzu, dass die institutionellen Rahmenbedingungen sehr unterschiedlich sind und ausserdem Misstrauen (aus der Vergangenheit genaehrt) bestehen mag -- alles Gift fuer die Entwicklung von Local Buzz. Der Kontext ist also zental und hat grossen Einfluss auf die konkret beobahtbare Auspraegung. I say: It is not misstrauen, but not Vertrauen
Different characters, some are not for communication. I guess half of them knows each other already. Few people are there without anyone they know. For them in the beginning it must have been difficult to find some ice-breakers, also because of some empty spaces (no automatic integration necessary, + very early). Ice breakers important and work differently

A7a Overview along the criteria for multipliers and regional anchor institutions (based on Bathelt & Maskell).



Characteristics of the events in the research field, with information on the embeddedness of actors involved in the colour of the bubbles (own elaboration)[149]

A7b Ad hoc interviews that underlie the research process

Interview-partners semi-structured audio dated respectively [Interview-partners, not semi-structured audio dated] *and its categorization as a start-up gazelle (based on p.29):*

Babbadov, Mahruz; Co-Founder Eurekite start-up (TW). *Patent based start-up gazelle, University of Twente.*

[Brandt, Carola; WFG Gronau (WML)]

[Bloch, Benjamin; geographical marketing bb@BenjaminBeloch.info (WML, ML)]. *Alumni based start-up gazelle[150], Saxion University of Applied Sciences.*

[Brünnings, Patrick; Founder Opwoco Software (WML, ML)]. *Alumni based, Saxion University of Applied Sciences.*

Dillingh Pieter; Manager NovelT development society (TW). *Network, Dealing especially with start-ups that are research- and ecosystem based, University of Twente and Saxion University of Applied Sciences.*

[Euregio agency (NL/GER)] (initial contact)

[Guillermo-Ramirez, Martin. Secretary General Association of European Border Regions (limitedly NL and DE, now in Berlin)] (initial contact)

[Herben, Maurice; Managing Director, Fraunhofer Project Centre Fraunhofer-Institut für Produktionstechnologie IPT in Aachen (GER)]. *Knowledge, especially in research-based cooperations, University of Twente (TW).*

Hoff, Ingo; Director Industriebau Hoff und Partner GmbH (WML, ML (TW)). *Support for ecosystem- and alumni based start-ups[151].*

[149] To illustrate the range of the model, its two most extreme events are contrasted:

- In the field temporary time dimension/specific goal: The two hours evening session on financing with Funding Steinfurt Kreissparkasse KSK, where participants come without knowing each other and leave solitarily as well. Within the degrees of interface from the adapted model, actors are predominantly participants and not necessarily aware of one another (0, "knowing that").

- In the field permanent time dimension/broad goal: The co-working space Produktivhaus, as a solidified network that forms a highly interdependent micro-Buzz. Actors are highly interdependent, referencing to one another among business partners and thereby reaching the highest degree of interface (7, "external interdependence") out of the adapted model.

[150] Although the firm does not appear to strive for enormous further growth, its pro-active engagement in the regional Entrepreneurial Ecosystem definitively qualifies as “gazelle” with a positive aggregate net effect for the region.

[151] Although the firm is long standing family business, its reach far beyond the region and its current growth to a major firm in Gronau, combined with pro-active engagement within the regional Entrepreneurial Ecosystem definitively qualifies as “gazelle” with a positive aggregate net effect for the region.

[Radema, Elize; Contact Person Germany, Gemeente Enschede (TW (ML))]
[Schildkamp, Peter, Contact Person Germany, Gemeente Enschede (TW (ML))] (initial)

[Schipper, Agnieszka; Contact Person Poland, Gemeente Enschede (TW)]

Strijks, Marco; Member of the Saxion [University of applied Sciences] Innovation Team, Business developer (TW). *Especially facilitating ecosystem-based start-ups (up to research based), Saxion University of Applied Sciences.*

Van Hatten, Egbert; Science shop Wetenschapswinkel (TW). *Especially facilitating research-based start-ups, University of Twente (since recently also Saxion University of Applied Sciences).*
Wegener, Ulrike; Contact persons for Founders at WFG Kreis Borken (NL). *Especially facilitating alumni-based start-ups.*

Interviewpartners, spontaneously evolving during events resp. important references:

[Dolk, Gründungs, Transfer- und Innovationsförderung Leiter Gründungskultur, Gründerstipendium exist program r.dolk@fz-juelich.de (GER, outside of the research area)]

[Hofmeijer, Gerard oranjestraat 10 Holten, ghr@ondernemerenfinanciering.nl, investor, mentor, presentation Nesst Hardstart (TW)]

[Hub Twente co-working space Enschede (TW)]

[Koster, E.F. Business development & manager Radboud research facilities e.koster@ru.nl (NL)]. *Especially facilitating research- and ecosystem-based start-ups, Radboud University Nijmegen.*

[Malessa, Thomas Vorstand/CEO münsterLand digital e.V. (ML)]

[Nanobaby.com in Gronau, buying and selling nano-technology online, also facilitating for KMU and start-up. Silke Schäfers CEO and Dr. Gregor Luthe, President (WML (TW))]. *Especially exploiting patent-based innovation (formerly University of Twente).*

[Pieper, Daniela Existenzgründerberatung Kreissparkasse Steinfurt daniela.pieper@ksk-steinfurt. de (Ibbbenbüren) (ML)]

[Phd. Stojanovic, Ivan. Biovolt company b.v., ivan.stojanovic@biovolt.nl (TW (GER))]. *Especially research based cooperations, University of Twente.*

[Use-Lab GmbH Steinfurt ("An-Institut" (= spin-off) FH Münster), medical product testing (ML)]

[Van Leussen, Henk; Tukkerconnection outsorcing services and managment henk@tukkerconnection.com (TW)]

[Van Ramshorst, Daan; Mapofhumanity.org at Nesst Hardstart (TW)]. *Ecosystem based start-up, University of Twente.*

[Vorobyova, Olga; Investor relations manager for the cross-border -business park in Belarus and Lithuania, vorobyova@industrialpark.by (through the HannoverFair bus trip, Belarus / Lithuania)]

[Whiskey and Cigar Salon Gronau http://www.whiskycigarsalon.com/home/ (WML (TW)]

[Winkelhaus, Daniela AIW Team assistent (TW)]

A8.1. Is (employable) talent as underlying (transnational) interdependence bordered?

Transnational linkages have been shown to lack an automatic support by circulation of information. The result is the need to purposefully maintenance, Externalities such as knowledge overspills in this study are seen as an "output-factor" of Local Buzz and eventually, through face to face linkages, as a consequence of interdependencies. With interdependencies at the base of knowledge (overspill) and linkages, the latter are "automatically" maintained in the benefit of mutual interest. To measure the functionality of a region, therefore, is also to measure the mutual interdependencies of actors in this region. The following chapter will, therefore, illustrate the two systemic conditions in Stam´s (2015) Entrepreneurial Ecosystem, to differentiate "[attracting] talent" (in the form of labour) and "finance". Firstly, it shows, how interdependencies in financial capital facilitate human capital and within this the spill-over of knowledge. Secondly, it displays, in which regard these important pre-conditions have a partly strong national, bordered dimension. The importance of the factor is derived not from them being directly production factors (cf. Porter 1998c as described on p.18, factor conditions), but indirectly underlying interdependencies that facilitate linkages and lead to knowledge overspills (cf. Saublens (2016), 84).

8.1.1. Employable talent (labour) as an untraded interdependency beyond the hierarchical and marketed governance of the of the traditional labour market

Distinctively, labour [5] relations can be seen as a less fixable interdependence underlying knowledge overspills within and among firms beyond the traditional, traded interdependency with permanent orientation. Especially in the case of highly flexible start-ups, hiring employees can have a rather broad goal of agility, "just in case [our highly innovative business will need it]" (Tobit.CampusTage, WFG Borken).

The following table, therefore, displays labour [5] relation as met in the Entrepreneurial Ecosystems of both Twente and the Westmünsterland, based on the criteria of Bathelt (2006) used earlier to identify possible areas of Buzz. Comparing that to the classification of the events visited, it is clear that "regular labour" in its in-firm relevance, is only one form of others underlies a Local Buzz. Therefore, co-working spaces and even concepts of shared qualified labour are sources for transnational interdependencies and therefore also reflected in the following table:

Employable Talent (not necessarily in a classical traded interdependency)	Permanent	Temporary
Untraded / Broad-Goal orientation	Externalities at co-Working spaces (Produktivhaus Münster/Gronau).	Ticket-accessibility beyond permanent co-working, also as an indicator for regional connectivity (cf. digital NRW network)
	Spaces of innovations through regional champions/Gazelle companies, “outsorcing” innovative efforts	Preparation camps on entrepreneurial awards, such as at Gründerstein
		Co-operation, mentorship with abstract benefits in the personal image and visibility
Traded / Specific Goal-oriented	Regular labour market: Ingo Hoff: “We are looking for the best anyway, so someone from The	German students for the Dutch start-up Thuisbezorgd.nl in

	Netherlands would have to be extra extra-ordinary“ [no thought on the underlying networks?]	Twente (personal contact in Enschede)
	“Innovation spaces“ (rooms/spaces) offered through firms, facilitating the “outsourcing” of own innovation activities	Temporary labour, mentioned for Volkswagen through Benjamin Beloch to deliberately gain knowledge overspills [Non-knowledge overspill oriented, temporary semi-skilled labour]

Figure: Specifications on possible labour [5] relation (own elaboration based on Bathelt 2006, table 1)

Exemplarily: Attracting talent as a challenge for the Entrepreneurial Ecosystem in the (West)Münsterland

For the entrepreneurial Münsterland region, according to Mr Malessa (Münsterland e.V., TobitCampusTage) of how to keep – and attract – (employable) talent is a vital issue. In more established businesses, the lack of qualified labour is something that "everybody believes will come" (30:00, 35:30, 1:00:00, Ulrike Wegener WFG interview))[152]. The necessity of well-qualified workforce is multiplied through facing hard concurrence of, e.g. the global players PWC und LVM that "throw outstanding salaries at the students, so that nobody starts anything anymore" (Malessa, TobitCampusTage)[153].

This has also, repeatedly and explicitly, been mentioned for starters (Interview with Patrick Brünnings, Opwoco; also cf. (27:40) Ulrike Wegener WFG interview). In that

[152] Moreover, the Fresh Business initiative of the network AIW discussed an event about advertising for talented labour (Coesfeld, stay at home event) as relevant event to consider and plan accordingly.

[153] The University of Münster in Germany ranks low in terms of entrepreneurship stimulation (Schmude & Uebelacker 2003)

way also in the (West-)Münsterland, some more "established" Gazelle software companies establish campuses to attract talent as the main reasons for firms to invest. Most visibly, it finds is reflected in attractive campuses ("for NetGo with a new campus, that is already the second after a short time" Ulrike Wegener, Interview). These can include an entrepreneurial centre and a co-working space (28:40, Ulrike Wegener WFG interview)[154], proving "very effective"(to promote the companies labour, but also service offer) and the general perception of the company in public, much "better than advertisements" (34:20, Ulrike Wegener WFG interview).

For the campuses as described, the direct or indirect contribution of talent to their innovative capacity is paramount. This might overspill (cf. table above) not only in a direct contract but also through hosting, e.g. start-ups directly on campus, something that can be compared to an "internalised outsourcing" of the innovation department off the own company. Indeed "D.velop with the start-ups on its campus keeps itself young"(Benjamin Beloch Interview) and is directly up-to-date regarding innovativeness. Indirectly, to be seen with start-ups can have a [7] positive marketing effect of being a company that is (and is to be seen) up-to-date (Benjamin Beloch Interview). Another example is when Pablo (AER start-up, Hardstart UT) profited from small-scale testing of models. This [7] external interdependence to facilitate (untraded, but also traded) externalities, therefore, is in crucial need of and communication channels to spread the simplistic positive message of being innovative to the (wider) Entrepreneurial Ecosystem and (labour) region. Except for the visual perception of buildings (along the motorway/main road), this is reached with communication channels such as newspapers and social media spreading the word and multiplying the effect.

[154] One example of this campus-effect to attract highly skilled labour forces is the TobitCampus in Ahaus. Challenged with a time of stay of only about five years, this company seemingly bases its strategy on an early outreach to potential employees through helping at events and flexible working times with attractive leisure conditions (restaurant, disco, bar, with outreach for the whole town of Ahaus. These are to justify also longer commuting times in a region with an unemployment rate of only 2,3%. In positioning themselves as positive employer or offeror of innovation spaces, the software campuses (try to) establish an “a-normal” gravitation (cf. law of gravitation in Gregory 2011) even for students from relative distant Münster.

1.1.2. Bordered dimension in attracting talent

With the “newspaper border“ (Talentscout, TobitSoftware[155]), one possible channel to reach a possible audience has already been described as finite. Traditional media in the Westmünsterland, relevant to approach start-ups, have been the Westfaelische Nachrichten and Wochenpost (Ingo Hoff, Interview) and also corresponds to the newspaper that I have been encountering during visits in especially Gronau and Ahaus. These differ, regarding area of reach and audience, drastically from the main traditional media in Twente, the Tubantia newspaper and moderate the anyway bordered "information ecology" in the Local Buzzes.

> An exception here is, e.g. the Gründerstein award, which deliberately tries to approach both Entrepreneurial Ecosystems and thereby also calculates the [7] external interdependence of a positive marketing effect (Ingo Hoff 3:10). However, this does not happen "transnational", but through approaching (traditional) national channels respectively. For digital formats, naturally, this is much more fluid, but still in a differing framework as could be shown.

Overcoming the state frontier as such can communicate both, a more remarkable (personal) profile and higher margins: "Ok, these concurrent here is five Euro cheaper, but Ingo Hoff is someone I know has an added value"). While in cases like this, crossing the border can display a wide range of contacts and resource access, it can also be rejected with the fear to lose profile as a networking organisation such as for some cross-sectoral network that has a strong territorial demarcation (Westmünsterland) in fear of becoming an "arbitrary". In contrast, to employ somebody from the other country had been the deliberate choice for NovelT in Twente, to facilitate networking in Germany (27:20, Pieter Dillingh Interview).
Although the labour market in the regional knowledge economy is indeed much less integrated, it should also not be forgotten, that cross-border labour is, how sparse it might be, more present in the border adjacent region compared to other

[155] A company whose digital-based market is to 100% in the German speaking countries.

regions in the respective countries. This leads to relatively few people indeed having high interdependencies across the border with a possible multiplier effect[156]. Deriving more general conclusions from that, the border is affirmed in being directly permeable for only a (very) limited group of people, but thereby indirectly surmountable through their positively intervening facilitation. Given that it astonishes, how much the border coincides with the area of reach in search for (desperately) needed talent.

[156] cf. Personal conversation in own Buzz, when handing in my rented room to the SHJT housing society, whose husband works in Gronau.