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Business Networking in Organisationally thin Regions: A Case Study on Network Brokers, SMEs and Knowledge-Sharing

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Structured Abstract

Purpose: Research on business networks in organisationally thin regions, which are characterised by a low density and quality of business networks, is still in its infancy, while the facilitation of business networks receives increasing interest. The present paper combines both perspectives by investigating how different types of network brokers facilitate business networking and knowledge-sharing in organisationally thin regions.

Design/methodology/approach: Burt’s theory on brokers in social networks is applied to knowledge-sharing in business networks for organisational thinness as context. A qualitative case study represents the empirical basis that describes network brokers from various domains in three different German case regions, which are characterised by organisational thinness.

Findings: The network brokers studied facilitate different types of business networks, and they use various levers to increase knowledge-sharing among companies in business networks. Two broker types emerge, private business-driven *versus* public policy-driven network brokers with distinct approaches to the facilitation of business networking and knowledge-sharing and different limitations due to organisational thinness.

Social implications: Companies, notably SMEs, in contexts characterised by low networking density and quality may benefit from various types of network brokers that foster business networking and instigate knowledge exchange. Public policy should embed activities of private brokers in existing SME assistance programmes to increase the quantity and quality of business networks.

Originality/value: Network facilitation in regions with weaknesses in their endowment with industry clusters, business networks and innovative knowledge exchange is under-explored, and this paper contributes to shedding light on this topic with a case study.

Keywords: Network brokers, business networking, knowledge-sharing, SMEs, organisational thinness.

Introduction

SMEs located in rural-peripheral or remote regions face some important obstacles when engaging in regional business networks (McAdam *et al.*, 2014; Burdack *et al.*, 2013). Some of these obstacles are associated with a context of organisational thinness (Isaksen and Karlsen, 2016; Tödting and Tripl, 2005). Organisationally thin regions are characterised by weaknesses in their endowment with industry clusters and business networks, and these regions are said to lack the necessary resources (investment, human capital and knowledge) to build sustainable innovation systems. Although organisational thinness can be found across various types of regions, it is most commonly discussed for rural (Gaddefors *et al.*, 2020) and peripheral regions (Dubois, 2015). A common remedy proposed for companies in such regions, particularly SMEs, is access to resources stemming from external actors, for example, through engagement in business networks outside the region (Huggins and Johnston, 2009; Virkkala 2007).

Business networking, which we define as the participation of companies in multiple and overlapping inter-company relationships and collaborative arrangements, indeed, supports companies in overcoming resource scarcities (Chetty and Wilson, 2003) because it provides them with access to new resource constellations (Gretzinger *et al.*, 2018) and improves the knowledge circulation (Valkokari and Helander, 2007). These network-based advantages can enhance the innovativeness of companies and spur innovation processes (Konsti-Laakso *et al.*, 2012; Lechner and Dowling, 2003).

However, business networks do not always emerge by themselves, but may rely upon actors that strategically connect the companies involved in the production of knowledge (Nilsen and Gausdal, 2017; Kalakovic *et al.*, 2009). In this paper, we focus on “network brokers”, *i.e.*, actors

that are aware of strategic opportunities for business networking and knowledge-sharing. Network brokers can be useful when companies may lack direct contacts with collaborators, which results in less interaction and knowledge-sharing, as well as less trustful relationships (Eklinder-Frick *et al.*, 2012). With regard to organisational thinness, such brokers can stimulate enterprise development, innovation processes and regional competitiveness by raising both the density and quality of business networking and facilitating the transfer of knowledge from within and outside the region (Tregear and Cooper, 2016; Esparcia, 2014; Burdack *et al.*, 2013).

Based upon this idea, the present paper explores how different types of network brokers facilitate business networking and knowledge-sharing among companies in the context of organisational thinness. Conceptually, Burt's (2005, 2000a, 2000b) theory on brokers in social networks is applied. It is assumed that business networking and knowledge-sharing represent two inter-related categories that describe organisational thinness (Isaksen and Karlsen, 2016), which network brokers can influence to some extent. Besides highlighting the capabilities of brokers, the paper also stresses the limitations for network brokers due to organisational thinness. Empirically, it departs from a qualitative study of network brokers from three German regions that are heuristically classified as organisationally thin (Isaksen and Karlsen, 2016; Navarro *et al.*, 2009; Tödting and Tripl, 2005).

This study is motivated by a gap in the literature on network brokers in organisationally thin regions. On the one hand, network brokers in rural-peripheral, or related, regional contexts have been discussed mainly for agricultural and food industries (McKitterick *et al.*, 2016; Olsen *et al.*, 2012; Batterink *et al.*, 2010) but not outside these sectors, which results in a lack of evidence on SMEs across different industries in such contexts. On the other hand, most studies on regional contexts for innovation focus on a systemic perspective, but not on individual actors as unit of analysis (except for Asheim and Isaksen, 2002). Hence, the present paper adds to the abundant literature on brokers in business networks, which are also referred to as network orchestrators, managers, facilitators and matchmakers (Nilsen and Gausdal, 2017; Ingstrup and Damgaard, 2013; Eklinder-Frick *et al.*, 2012; Eklinder-Frick *et al.*, 2011), with a case study on an under-explored regional context for innovation and knowledge management with SMEs. It sheds light on this context of organisational thinness for business networking and knowledge-sharing through the lens of Burt's social network theory (Burt 2005, 2000a, 2000b).

The remainder of the paper is organised as follows. The next section contains the theoretical background of this paper, while the subsequent section presents the empirical research context. This is followed by sections on the research design and data collection, empirical analysis and discussion of findings in relation to theory. Finally, conclusions about theory and policy development are presented and limitations as well as avenues for follow-up research provided in the final section.

Theoretical Foundations

In the following section, organisational thinness as a regional context for business networking and the concept of brokerage for business networks and knowledge-sharing will be described, and, subsequently, the state-of-the-art on these issues will be summarised.

Organisational Thinness and Business Networking

New planning approaches emphasise that many regions across Europe and elsewhere are too diverse to be depicted with dichotomous, rough categories such as rural-urban or centre-periphery (Leick and Lang, 2018; De Souza, 2018; Ferrão and Lopes 2004) because these categories fail to capture the challenges for companies represented in such regions, for example, the availability and quality of social capital (Bosworth, 2012).

In this paper, we frame such challenges with the concept of organisational thinness, which stems from the literature on regional innovation systems (Tödtling and Tripl, 2005). Regions classified as organisationally thin are described as suffering from a low degree of knowledge circulation, which results from the low levels of business networking and industry clustering within the regions, and weak institutional-organisational support for knowledge-creation and innovation processes (Tödtling and Tripl, 2005).

These “stylised facts” are associated with several limiting factors to regional knowledge production and innovation, which include, for example, a lack of knowledge organisations (universities, colleges and R&D agencies) and competitive industries with the potential to build business networks, a pre-dominance of SMEs, the presence of only a few large, and often externally-owned, companies with roots outside the region, and a prevailing doing-using-

interacting mode of innovation that mostly builds on the exploitation of tacit and experience-based knowledge and generates incremental product and process innovation (Isaksen, 2014). In addition to the lack of critical mass, the existing companies and knowledge organisations in the region also show a low competence profile (Grillitsch, 2016; Isaksen, 2014; Tödtling *et al.*, 2012; Flåten *et al.*, 2015).

This is partly due to the prevalence of SMEs, which contribute to the region's growth and development (Thurik and Wennekers, 2005), based upon their innovativeness (Staniewski *et al.*, 2016), whilst facing manifold challenges concerning their business networking (Konsti-Laakso *et al.*, 2012). Hence, organisational thinness pictures a context that offers only a low-road to business networking with limited knowledge-sharing, which makes it necessary to compensate for missing linkages between companies inside and outside the region (Isaksen and Karlsen, 2016). As the empirical literature highlights (Gaddefors *et al.*, 2020; Dubois, 2015), this context is often found with rural-peripheral regions.

Network Brokers and Business Networking

Brokers in business networks seem to be a key to fostering the innovativeness of companies in business networks, based upon knowledge-sharing (Farinha *et al.*, 2016; Esparcia, 2014). In the literature, such network brokers come in various shapes and forms, for example, as business clubs (Laschewski *et al.*, 2002), lead companies in clusters (Ingstrup, 2014; Morrison, 2008), private companies and universities in regional innovation systems (Kauffeld-Monz and Fritsch, 2013), and/or through policy initiatives (Huggins, 2000). They can fulfil different roles about business networking (Belso-Martinez *et al.*, 2018). One of the prevailing and established views on network brokers that considers these roles is Burt's (2005, 2000a, 2000b) theory on brokers in social networks of people.

Burt (2005, 2000a, 2000b) describes brokers as actors that identify and exploit the lack of relationships between different social networks that have no ties, or only superficial, loose ties. Because these networks are not overlapping, the brokers, who have contacts in all the networks present and reside at the source of knowledge flows within and between networks, are able to make strategic connections and build relationships between actors from different social networks that have not interacted before. Burt (2000a) hypothesises that brokers are motivated to do this because they receive either social prestige, control and information advantages, or

economic benefits in return for their actions. Hence, they act like entrepreneurs with the goal of building networks (Burt, 2000b).

Business networks can be understood as a specific type of social networks (see Eklinder-Frick *et al.*, 2012, 2011). Based upon their alignment to several networks, brokers in business networks benefit from a central position and an overview of all the opportunities available to connect the various companies (De Carolis and Saporito, 2006; Burt, 2000b). This is important because business networks can be composed of different types of companies (such as SMEs) using various formal and informal ways to interact (Olsen *et al.*, 2012). Moreover, the degree to which companies are willing to exchange resources including knowledge and collaborate depends upon the trust and reputation that is established within the network (Ceci and Iubatti, 2012).

Therefore, depending upon the specific goals and contexts (Filieri *et al.*, 2014; Ahuja, 2000), brokers can fulfil different activities in business networks to build relationships between companies belonging to different networks:

- First, network brokers might enhance the collaboration within a business network by developing trustful and balanced relationships among companies. Brokers that support such close relationships, with the goal of enhancing trust-building, use *bonding* to facilitate dense relationships (Anderson and Jack, 2002; Kogut, 2000). Brokers can thereby support the exchange and diffusion of knowledge within or between business networks (Fritsch and Kauffeld-Monz, 2010), notably with regard to the deployment and accessibility of tacit knowledge (Andersen, 2008; Amin and Cohendet, 1999).
- Second, network brokers can also support the accessibility of external knowledge and support its integration into an established business network, rather than increasing the intensity of interaction within the network (Leick and Gretzinger, 2018). In this case, the goal is to prevent a core business network from becoming “locked in” within its own knowledge base (Noteboom, 2006) and disconnected from valuable knowledge rooted outside the focal network. In this case, brokers use the *bridging* of relationships between companies without prior contacts or regular interaction in order to provide the business network with knowledge from outside. According to Burt (2005, 2000a, 2000b), brokers can recognise opportunities for bridging by identifying the sources of external

knowledge that can be made available to a business network (Borgatti and Foster, 2003; McEvily and Zaheer, 1999).

- Third, network brokers can also exclude companies from a business network that might prove harmful to its functioning or exclusivity (Gretzinger and Leick, 2017) or when they want to keep the number of network companies low (Ziggers *et al.*, 2010). Brokers use their central position to control the incoming and outgoing knowledge flows and protect the competitive advantages of the business networks by such *exclusion*, for example, to render the existing relationships more exclusive and valuable (Obstfeld *et al.*, 2014; Burt, 2000a).

With Burt's (2005) broker concept, the following idea is established for business networking: By using and combining *bonding*, *bridging* and *exclusion* for the inter-company relationships in business networks, brokers can increase or reduce both the quantity and quality of network relationships (Belso-Martinez *et al.*, 2018; Klerkx and Proctor, 2013) and thereby support network-building among companies including SMEs.

Network Brokers and Knowledge-Sharing

Naturally, such network-based interaction involves some degree of knowledge-sharing (Provan and Human, 1999). Brokers are, thus, dependent upon the willingness of companies to share knowledge, which requires trust and trust-building (Brunetto and Farr-Wharton, 2007; Durst and Edvardsson, 2012). In addition, network brokers need to manage the heterogeneity of the knowledge associated with different companies represented within business networks. This knowledge base is typically constituted of explicit (codified) and tacit (non-codified, experience-based) knowledge (Belso-Martínez *et al.*, 2015; Proprius, 2002; Quintas *et al.*, 1997). It is necessary that network brokers activate the specific knowledge bases of companies in business networks in order to uncover tacit knowledge and turn it into more explicit knowledge which is deployable by other companies in the network.

As Anderson (2008) argues, the development of social relationships between companies in business networks supports such knowledge-sharing. Regarding the three activities of network brokers (Burt, 2005), social capital in inter-company relationships can be activated to facilitate knowledge-sharing as follows (Belso-Martínez *et al.*, 2015; Fritsch and Kauffeld-Monz, 2010;

Dhanaraj and Parkhe, 2006; Howells, 2006): Due to their central position in a business network, brokers can evaluate the available knowledge and identify knowledge gaps to strategically call for missing knowledge from internal and external sources (*bridging*). Moreover, they stabilise the interaction and, hence, knowledge flows between companies, but with *bonding*, network brokers can also enforce trust-building processes through interaction. Finally, they can control the influx of external knowledge and safeguard its integration into the knowledge base of the business network (Mu *et al.*, 2008; Ahuja, 2000). This goes along with the *exclusion* of harmful companies to protect an exclusive and trustful environment that enables knowledge exchange. Bonding and exclusion are particularly relevant for the sharing of tacit knowledge in business networks (Levin *et al.*, 2016). Altogether, by combining bridging, bonding and exclusion, network brokers facilitate novel combinations of knowledge, which stems from both companies in the business network and external sources.

In addition, network brokers can use these activities to build common frames, which make companies better understand and exploit the knowledge from outside sources. This activity of a broker goes beyond the scope of Burt's (2005, 2000a, 2000b) concept, but explains an essential element of the facilitation of knowledge-sharing. According to this idea, network brokers are engaged in the *translation* of information into knowledge and, as a result, the *framing* of new ideas for business networking, which support the establishment of a common understanding that all the companies involved accept (Hung and Whittington, 2011; Morrison, 2008; Sverrisson, 2001).

This argument underlines that network brokers can support business networking among companies by developing the social capital associated with business networks through bonding, bridging, and exclusion (Westlund and Kobayashi, 2013; Burt 2005) and enhance the dissemination and generation of knowledge for companies in business networks (Nilsen and Gausdal, 2017; Clarke and Ramirez, 2014; Klerkx and Leeuwis, 2008).

Network Brokers in Organisationally thin Regions

For the context of this paper, which deals with organisationally thin regions, we define network brokers as actors – individual persons and/or organisations – that are aware of strategic opportunities for business networking and knowledge-sharing and connect persons associated

with companies, public-policy bodies and related organisations from within and outside the region (*cf.*, Heinze *et al.*, 2016; Manning and Roessler, 2014; Ingstrup and Damgaard, 2013).

The literature on such actors is, however, scarce with regard to rural-peripheral or remote regions and non-existent for organisational thinness. Generally, business networking is highlighted as an important lever for companies in such regions to upgrade their knowledge-related and innovation capabilities (Huggins and Johnston, 2009; Copus *et al.*, 2008; Copus and Skuras, 2006). This is based upon learning effects, notably for SMEs (Burdack *et al.*, 2013). While De Noni *et al.* (2018) propose that the regional innovative capacity can be promoted in the best way by adding external, *i.e.*, non-local actors, to regional business networks, Tregear and Cooper (2014) show that intensive inter-company relationships within the region are equally important to enhance business networking and generate innovation.

Some studies address policy-driven interventions to develop business networks in such regions (Laschewski *et al.*, 2002), for example, through a cluster/network organisation (Calignano *et al.*, 2018). Few studies, however, focus on the potential effects of brokers and related actors on business networking in rural-peripheral regions except for O’Gorman and Evers (2011), who demonstrate how intermediaries in networks facilitate the internationalisation of SMEs in peripheral regions, and McKitterick *et al.* (2016), who show that network brokers build trust among companies in business networks among food producers in rural regions. Altogether, it is not clear who network brokers in organisationally thin regions are and how they can be described, which motivates for the following case study.

Empirical Context

The Case Regions

The empirical research context of the paper is composed of German NUTS-3 regions: *Donnersbergkreis* in Rhineland-Palatinate, south western Germany, *Erfurt* and the surrounding regions of *Ilmkreis* and *Weimarer Land* in Thuringia, East Germany, and *Schleswig* in Schleswig-Holstein, North Germany. These small-scale regions are characterised as organisationally thin in line with the heuristic, inductive categories derived by Tödtling and Trippel (2005), Isaksen (2014), and Isaksen and Karlsen (2016). Hence, the structural characteristics of companies and industries, the existence and density of business networks and

industry clusters, and the presence of knowledge organisations (universities, colleges, and specialised training and research institutes) were used as selection criteria for the case regions, based upon considerations for theoretical sampling (Eisenhardt and Graebner, 2007; Siggelkow, 2007; Eisenhardt, 1989).

In fact, the regions represent organisational thinness in several respects. First, challenges resulting from the regional structure of companies and industries include, for instance, a low density of industries in Schleswig, or a lack of high-tech industry clusters and competitive business networks in Rhineland Palatinate. Companies in these regions need to rely on informal business networking outside formal clusters or engage in external business networks. Second, there is a strong prevalence of SMEs in all three regions, and the SMEs, moreover, operate in specialised segments or niche markets and interact little with knowledge organisations that are located mostly outside the regions. Third, local labour markets provide very limited job opportunities outside SMEs, which impairs notably the recruitment of high-skilled persons and young employees. Fourth, there are either few knowledge organisations in the regions (as in Rhineland Palatinate), or the available knowledge organisations do not match the needs of the SME-dominated industries (as in Schleswig). Finally, similarly to what Eklinder-Frick *et al.* (2011) show for business networking in a rural-peripheral region of Sweden, communication barriers between companies that are rooted in different mentalities, modes of technology use and production, for example, between large companies and SMEs, reduce their willingness to participate in business networking and knowledge-sharing.

The Network Brokers

The network brokers in the three regions are associated with heterogeneous organisations represented in the regions (Table 1).

<i>Network broker</i>	<i>Region</i>	<i>Main responsibilities</i>	<i>Affiliated organisation</i>
A	Thuringia	Education and training services and other business services	Private association of educational agencies
B	Rhineland Palatinate	Regional business development and tourism management	Municipality
C	Schleswig Holstein	Regional business development	City administration
D	Schleswig Holstein	Regional business development	Chamber of commerce

Table 1: The four network brokers

Network broker A is a private educational agency in East Germany, offering professional services in the area of recruiting and related human resources (HR) services, the training of workers and the involvement of elderly employees to local companies. The broker is a privately-run company and receives external public funding for the activities devoted to the establishment of networks among private companies and public organisations. The broker represents a co-ordinator of a business network with a focus on the HR-related issues of companies, particularly from a region where SMEs dominate and employers face recruiting challenges.

Network broker B is head of a business and tourism development unit in a small municipality in south western Germany. Beyond his work of fostering business development and tourism, he is committed to the building of networks among companies in the municipality and the wider region. This privately motivated commitment results from his professional understanding as a matchmaker. The challenges for companies include the location of the municipality, which is stuck between larger metropolitan areas, the problems to attract skilled workers from these metropolitan regions and further afield to the region, and the ageing of the existing workforce. In the initiatives that network broker B starts, he focuses on fostering business networking inside and outside the region to find joint solutions to these local challenges.

Network brokers C and D are both persons aligned to public- or semi-public business development and trade promotion organisations in northern Germany. Network broker C is the head of a small business development unit, owned by a larger consortium of rural municipalities, whereas broker D is the head of the regional management unit in a local chamber of commerce in the same region. Both are committed to network-building among companies in the region, and, in their commitment, they address a broad range of challenges that companies face due to their location, for example, the shortage of skilled labour and the lack of established business networks.

Research Design, Data Collection and Analysis

The paper rests on a qualitative study aimed at investigating how different types of network brokers facilitate business networking and knowledge-sharing in organisationally thin regions. Empirically, the study is based upon 20 semi-structured, personal interviews conducted between the years 2011 and 2018.^[1] In this period, a total of 12 interviews were made with the

four network brokers (Table 1) and a further 8 interviews with external third-party experts (Table 2). By third-party experts, we define key persons either from companies from the case regions that benefit from the activities of the network brokers studied, or persons who are aligned to public-policy bodies that collaborate with them. All interviewees were selected through snowballing techniques. The four network brokers selected were identified by leads that the third-party experts provided during the early stage of the research period.

<i>Third-party expert</i>	<i>Region</i>	<i>Main responsibilities</i>	<i>Affiliated organisation/s</i>
E	Thuringia	Company	Regional SME
F	Thuringia	Public policy body	Regional employer association
G	Rhineland Palatinate	Company	Regional SME
H	Rhineland Palatinate	Public policy body	Business development consultant
I	Rhineland Palatinate	Public policy body	Regional policy body
J	Schleswig Holstein	Company	Regional start-up company
K	Schleswig Holstein	Company	Regional SME
L	Schleswig Holstein	Company	Regional SME

Table 2: The third-party experts

The interview process was organised in two stages. In the first stage, a total of 8 interviews with brokers and experts focused on the organisational thinness of the regions, the challenges for companies resulting from this, and the involvement of companies in local business networking. For example, the topics addressed in the first stage pertained to the question of how companies generally cope with the locational context, to which extent they are involved in local business networks and how they use the networks to overcome locational challenges.

In the subsequent stage, 12 additional interviews were made with network brokers and third-party experts to refine the findings from the first interviews. The second-stage interviews were strongly aligned to the theoretical categories of bonding, bridging and exclusion, as well as activities related to knowledge-sharing in the context of business networking. Therefore, the main topics covered in the interviews with the network brokers were how network brokers apply bonding, bridging, and exclusion, and how they facilitate knowledge-sharing in business networks. The interviews with third-party experts focused on finding out whether companies benefit from the business networking and knowledge-sharing organised by network brokers, how the third-party experts assess the ability of the brokers to perform these activities and which limitations the network brokers meet.

All interviews were recorded, and transcripts or brief summaries were written for each of them. The interviews had varying durations. Those with the network brokers in the first stage lasted between 2 and 2.5 hours, whereas the follow-up interviews with the brokers in the second stage took approximately 45-60 minutes. The interviews with the third-party experts had an average duration of 30-40 minutes in both stages. Finally, interview guides with open-ended questions were used in all stages, which allowed flexibility to pursue any new topics emerging during the interviews.

The analysis of the collected interview data took place through a two-step procedure. First, the data were categorised by the authors in a thematic coding process that paid attention to the main theoretical concepts. Afterwards, pattern coding (Saldaña, 2016) was used to look across the three regions in order to discover analytical generalisable trends and relationships relating to the network brokers. Examples of such trends and relationships included characteristics associated with the activities of network brokers with regard to business networking and knowledge-sharing, and the limitations associated with network brokers. The data analysis was accompanied by the triangulation of both data and investigators. Several meetings among the participating researchers took place in which the data and their respective analysis and interpretation were verified from different angles (Flick, 2004).

Empirical Analysis

Network Brokers facilitating Business Networking

The four network brokers facilitate business networking by various activities that support the bonding, bridging, and exclusion of inter-company relationships (Table 3).

Empirical Findings

<i>Theoretical category assigned after coding</i>	<i>Examples of original citations by interviewees (raw material, translated to English)</i>	<i>Cross-case interpretation based upon theoretical category</i>
Facilitation of business networking		
Bonding of relationships	“We find it very difficult to build relations to the very small companies with less than 10 employees. The owner-managers do everything themselves but do not consider strategic goals very much. (...) Here, fostering networks means that we give these companies both time and the physical space	Network brokers build dense, trustful relationships between companies respectively companies and other actors in the region or beyond.

	<p>for meetings in which they can learn from each other. This exchange is well accepted by the very small companies.” (Network broker A)</p> <p>“It is generally difficult and works only if all parties involved benefit. In one case, it worked well for a network because we build the relationships on trust between companies, real-estate agents and banks involved.” (Network broker B)</p> <p>“That works indirectly via partners the companies have because they have a trustful relationship. That is very important.” (Network broker C)</p> <p>“Very often networks are established because people know other persons. I think that this is a good approach to business networking. And you often need a personal contact.” (Network broker D)</p>	
Exclusion of relationships	<p>“When we have our meetings with small- and very small companies, we do not want to have business consultants attending. We take care when we invite that the companies meet in a closed circle. Consultants would disturb the entire meeting, and we involve the consultants in different kinds of activities.” (Network broker A)</p> <p>“Media contacts have to managed cautiously. They need to be informed in advance, but step-by-step. (...) Personally, I do not like the so-called bottom-up method. There are too many particular interests involved that will kill your project. I rather communicate the first step only and bundle interest that match this step.” (Network broker B)</p>	Network brokers exclude companies, organisations or individual persons from business networking.
Bridging of relationships	<p>“In the first years, we tried to involve strategic partners to our business networks, for example, from ministries and the labour agencies. But it got difficult when it came to defining common goals with the strategic partners. (...) With the companies in the networks, this worked always well.” (Network broker A)</p> <p>“It is like the mafia how we act: you do a favour to someone, and the favour is returned to you. The companies only agreed to participate if they saw a benefit such as contacts to lobbyists and politicians, chambers of commerce and industrial associations. That is how we organised the regular meetings.” (Network broker B)</p>	Network brokers build loose and diverse relationships between companies respectively companies and other actors in the region or beyond.

	<p>“It is about intra-organisational problems and challenges. I tell the companies: Try it this way! (...) Every day we talk with companies and learn about new solutions that these companies develop, and we bring these solutions to other companies. (...) That is our approach!” (Network broker C)</p> <p>“We are getting active upon requests, and we organise trade fairs and events to initiate new networking activities. (...) Sometimes, with networking, knowing someone personally is not enough but you need to have the right, that is, competent and responsible contact. That is not necessarily the one that you know!” (Network broker D)</p>	
Facilitation of knowledge-sharing		
Knowledge infrastructure – provision and management	<p>“We keep the information infrastructure alive. All organisations registered use our newsletter and will be actively contacted by us to be informed about our activities and events on a regular basis.” (Network broker A)</p> <p>“We do not simply put leaflets on the web. Instead, we go to the companies and ask them: ‘What do you need?’ Then we try to find a supplier or a call for what they need and further the information back to them.” (Network broker B)</p> <p>“We like to work with checklists, and we use checklists to contact companies in order to get access to them. It is a challenge, but it works.” (Network broker C)</p> <p>“We have a pragmatic approach that has proven quite successful. We typically collect the different requests made by the companies. And step-by-step we put together a list of frequently asked questions that helped us to map their main problems.” (Network broker D)</p>	Network brokers provide an infrastructure for knowledge-sharing.
Retrieval of knowledge	<p>“We always take in feedback from companies and ask them to report us their ‘hot topics’. It works demand-driven.” (Network broker A)</p> <p>“We know very well all the good funding opportunities, and then we create projects such that they fit the funding requirements. We often get the funding.” (Network broker B)</p> <p>“Knowledge management is very important, but nothing the companies here in this region are committed to. But no company can afford to lose the expert knowledge of a person that retires. (...) It is challenging to learn about the specific problems of companies in a</p>	Network brokers retrieve knowledge from the infrastructure built for business networking.

	<p>consulting meeting. (...) It is a matter of trust to share this information with us.” (Network broker C)</p> <p>“Due to all the strong connections with the local industries and companies, we are able to offer a high quality of consulting and assistance to all companies. For instance, we use events with varying topics but the same concept. This is a lever to exchange information.” (Network broker D)</p>	
Knowledge combinations	<p>“We have established formats for transferring knowledge, and they are very sought after. Therefore, we continue to work with those formats but vary thematically. The topic of demographic challenges is now very important for all companies because all have recruiting difficulties. Employer branding gains more in importance. We conduct surveys across the region every year to check if our topics are still up-to-date.” (Network broker A)</p> <p>“Each partaking organisation was supposed to provide expert knowledge on a specific topic to the network that was displayed as a joint service to external parties, and we coordinated this. If one organisation noticed that the demand by the company needed a different contact, the contact was provided from within the network based upon our broad expertise.” (Network broker A)</p> <p>“We choose current and important topics for the companies and invite experts, for example, from universities or politicians. We selected those topics that matter for everyone, including the companies. For example, we had a funding expert we invited to our network meetings to provide companies with a contact. Companies get contacts and first-hand information.” (Network broker B)</p> <p>“Many German SMEs have been working in Denmark in the construction sector, but they did not take care about the pre-requisites they needed to fulfil to work there. Notably small companies got in trouble, for example, because they did not register online in Denmark, etc. A lot of problems! And we helped them to find out which information they needed and how to fix the problems. Our mission was: Maybe we don’t know yet but we will find out!” (Network broker D)</p>	Network brokers combine knowledge from different sources.
Framing and translations regarding knowledge	<p>“Also when we become aware of a new trend in the market, we offer this as a new topic to our local companies. A good example is social inclusion in the workplace. No</p>	Network brokers frame problems and challenges respectively translate between different persons associated with different communication cultures.

	<p>company asks us about this, but we know several companies that will benefit from integrating more inclusion in their operations and strategies” (Network broker A)</p> <p>“We need a strategic view on the companies and mediate between different ideas. That is a challenge.” (Network broker C)</p> <p>“If you have studied only at a university, you do not know the language spoken inside the small businesses. That will not work. You have to be very basic and down-to-earth when talking with those small companies (...) The language of the companies, if you do not understand it, if you do not understand how the companies think and fight to get by.” (Network broker C)</p> <p>“We have different dialects and understandings in a border region, it is not always language, but also knowledge. Some things are very trivial, but this needs to be addressed in reality.” (Network broker D)</p>	
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Table 3: Empirical findings from the interviews – Raw material *versus* theoretical categories

Bridging is referred to by network broker A, as *bringing the right people together*, which denotes the capacity to enable strategic interaction between people from different companies and organisations in the regions without prior contacts. Since many SMEs cannot initiate such interaction by themselves due to resource scarcity, they benefit from the rich contact pool of brokers, which includes other companies, lobbyists, policy-makers and industry organisations, as network broker B reports. Other examples of bridging are that network brokers B and D intentionally build relationships between SMEs and the powerful players in the regions such as large companies or key policy bodies, which the brokers consider to be multipliers for the business networks. Their inclusion motivates SMEs that typically lack resources (time, staff, information and knowledge) to engage in relationship-building and join newly established business networks because they see a benefit in obtaining contacts with large companies or important policy actors. As another example, network brokers B and C connect companies that have openings with candidates that will soon be laid off to keep skills in the region. Again, the door-opening and provision of contacts by network brokers replaces activities that the SMEs cannot perform by or for themselves.

The network brokers are also committed to the *bonding* of relationships in order to intensify existing inter-company relationships when companies share the same interests and are open to

knowledge-sharing. Network broker A, for example, is engaged in creating meetings in closed circles among SMEs with often less than ten employees because these very small companies are rather unwilling to exchange knowledge directly with the network broker, but are more open when they meet among peers such as owner-managers of other small companies (Table 3).

Moreover, network broker B reports that such activity is important in the early-stage network formation when trust needs to be developed. Network broker C points out that close and frequent interaction is also important when companies in established business networks need to re-confirm or re-new shared goals and values, which requires knowledge-sharing. However, both network brokers A and B stress that these activities are limited by the unwillingness of companies to disclose knowledge and share it with other companies.

Therefore, to safeguard a trustful interaction and communication and increase the willingness of companies to participate, the network brokers also *exclude* companies or organisations from business networking. Network broker A excludes business consultants from meetings among SMEs because the presence of consultants would disturb the open dialogue between the persons aligned to the companies. In a similar vein, network broker B excludes potentially harmful companies and other stakeholders (for instance, from the media and policy arena) in early-stage business networking because they could break the project in its initial stage (Table 3).

Network Brokers facilitating Knowledge-Sharing

Table 3 also highlights how the network brokers studied possess and use knowledge about the companies represented both in the regions and their established business networks, which is crucial to their facilitation of knowledge-sharing through bonding, bridging and exclusion. They work with different activities such as the set-up of an appropriate infrastructure to manage the knowledge-sharing. This infrastructure includes a knowledge repository that is regularly updated.

For example, network broker A contacts all registered companies in the network regularly and proactively so that companies can keep track of news. Third-party expert E confirms that companies benefit from the proactive knowledge management by network broker A, which was customised to the companies and their interests. In a similar vein, the two third-party experts, J and K, emphasise that the creation of a platform for shared knowledge such as information

about business contacts by network brokers C and D was key for them and provided them with new customers in their start-up phase. This activity is embedded in the goal of network brokers to use the bridging of inter-company relationships.

Moreover, bonding is used to enhance knowledge-sharing. The network brokers studied retrieve and combine knowledge from diverse sources to render their existing relationships more intensive and dense. For example, network broker C uses knowledge about matching companies that have overlapping interests or face similar challenges to support companies to cope better with regional challenges, for example, concerning recruiting and retention of employees. Another example given by all four network brokers refers to SMEs that gain access to the knowledge bases of large companies in their region, something they would not achieve without the brokers.

In addition, the network brokers frame and translate the challenges and problems met by companies to the whole business network in order to build common ground among them (Table 3), for example, by using a universal language in the communication with diverse persons. Network broker C adapts to a non-academic, down-to-earth language when he talks with SMEs about their strategies and goals in order to get a better understanding of these their strategies:

We need to understand how the small companies and their managers think, how they have to fight to survive and what the challenges they face are. ... our work often departs from metaphors and pictures belonging to the people in these companies who describe their visions and goals (Network broker C).

One example from the case study is when the network brokers want to convey an understanding of market changes or new policy programmes, as network brokers B and D report. Network broker B observed that the rising pressures on SMEs to invest more in training and recruiting led to an increasingly demand-driven business networking. In these situations, network brokers B and D address specific knowledge gaps about future challenges and translate international or national trends to a regional community. Because of their rich contact networks within and outside the region, network brokers can achieve to close these knowledge gaps since the companies would not easily access the knowledge themselves and knowledge organisations with external relationships are missing in the region. As third-party expert F states, network

broker A, as an example, represents an interface to national policy initiatives, and companies can learn about them through the broker.

Organisational Thinness: Limitations to Network Brokers

The network brokers face various limitations, which are associated with the regional context of organisational thinness but differ across the four network brokers studied.

Private network brokers

In the cases of network brokers A and B, which are either private companies (network broker A) or have been established out of the private commitment by a publicly employed individual (network broker B), their activities are not or only minimally financed by public funds. Therefore, the brokers are continuously struggling with resource scarcities and depend heavily upon external funding, which is typically not only short-termed, but also often not in line with the actual needs of the local companies. Third-party experts G and H stress that the lack of financial resources of network broker B limits the networking activities and the struggle to receive funding leads to mismatches between regional network goals and the agenda of national programmes:

Although he [network broker B] is always very close to the companies, the topics he has brought into the community with the funding programmes do not really fit (Third-party expert G).

He [network broker B] is planning his network projects in a way that he gets funding for them (Third-party expert H).

Moreover, third-party expert I stresses the missing embeddedness in regional policy structures as a challenge for network broker B, saying that *he is a lone fighter*. Hence, the lack of policy support challenges network brokers A and B, which is also associated with a lack of recognition of their networking initiatives by policy bodies, something that third-party expert E reports concerning network broker A:

I have noticed that local policy-makers do neither support nor appreciate these kinds of small networks that benefit small companies like us (Third-party expert E).

These challenges actually keep the network brokers A and B from continuously and proactively motivating very small SMEs to join networking initiatives:

They [network broker A] offer a broad range of tools and initiatives to companies. But it requires a lot of activity especially to reach the small companies and arouse their interest for regional networking. ...They might be more successful with this if they had more funds to promote their initiatives (Third-party expert F).

Public network brokers

Network brokers C and D are embedded in the existing policy infrastructures and hold a public mandate to act on behalf of all companies registered with the policy bodies to which the network brokers belong. These brokers cannot proactively approach individual companies and build intensive relationships with them, as network brokers A and B do. Third-party expert K reports about this challenge in relation to network brokers C and D:

When we started our company, it was extremely difficult to get the necessary contacts and information. We had to follow every lead ourselves and invested a lot of time and energy in obtaining the necessary information (Third-party expert K).

However, since the network brokers C and D cannot exclude companies from networking either, their open and neutral approach encompasses a broad range of companies from the region, which is considered as an asset by third-party expert J:

They [network broker D] act very neutrally and include all companies, and we get all the data we need. On their networking events, we can present ourselves and make contacts (Third-party expert J).

Discussion

Network Brokers facilitating Business Networking and Knowledge-Sharing

The network brokers and their facilitation of business networking and knowledge-sharing in organisationally thin regions rests upon bridging, bonding, and exclusion, which is explained by Burt's concept of a broker in social networks (Burt, 2005, 2000a, 2000b). The facilitation of business networks is, moreover, enabled by the rich knowledge pool of the network brokers. This corresponds to the understanding of a broker as an actor that holds valuable knowledge and deploys it strategically (Burt, 2005).

The activities of the network brokers studied typically refer to *bridging* in order to grant companies access to knowledge through network relationships from within and outside the region. Hence, network brokers may compensate for obstacles to knowledge-sharing in the organisationally thin regions, for example, the low degree of knowledge circulation, the lack of knowledge organisations, the critical mass of companies and industry clusters, and the informal doing-using-interacting approach of companies to innovate (Grillitsch, 2016; Isaksen, 2014). The brokers may even amend the few existing knowledge organisations in organisationally thin regions because they integrate persons aligned to companies and organisations with heterogeneous knowledge bases in regional business networks.

However, knowledge-sharing, particularly with regard to tacit knowledge, requires trust and exclusiveness of relationships (Ceci and Iubatti, 2012). Therefore, the network brokers investigated also apply *bonding* to create trust between companies that already interact in a business network and encourage their sharing of tacit knowledge. In addition, network brokers use the *exclusion* of companies or organisations from business networking when knowledge-sharing needs to be kept limited to a close circle within the network. With their bonding and exclusion, the network brokers improve both the quality of the interaction and conditions for knowledge-sharing between companies, which is important in organisationally thin regions where organisations supporting knowledge-sharing are rare (Grillitsch, 2016; Tödting and Tripl, 2005). Notably the customised knowledge management that network brokers provide for SMEs through connections with large companies and policy actors can improve the knowledge absorption by SMEs despite a general lack of knowledge-producing organisations and companies in the region.

Furthermore, the facilitation of business networking and knowledge-sharing are, indeed, intertwined. Network brokers deploy knowledge strategically by calling for knowledge from companies and giving companies access to specific knowledge, which supports a higher

quantity of the knowledge shared (*bridging*). Moreover, the brokers increase the intensity and quality of relationships (*bonding* and *exclusion*) which positively affects knowledge-sharing taking place in the relationships. These activities are accompanied by the framing of joint understandings for network goals and the translation of ideas and concept such that all companies in the business network can accept and subsequently deploy this knowledge.

Types of Brokers in Organisationally thin Regions

Based upon the empirical analysis, two types of networks brokers – private, business-driven network brokers (A,B) and public, policy-driven brokers (C,D) – emerge in organisationally thin regions with the following characteristics:

Domain of emergence

Network brokers A and B represent private and business-driven network brokers, which have been requested by companies in the region because of their wish for specific networking services. By contrast, network brokers C and D represent a policy-driven type of network broker, one which is aligned to established public policy structures.

Nature of facilitated business networks

Network brokers A and B facilitate the rather closed business networks of a small number of companies, whereas network brokers C and D facilitate broad networks among companies registered with the regional public policy body.

Broker-company relationships

The relationships between network brokers A and B and the companies are dense, whereas the broker-company relationships with network brokers C and D are less dense.

Facilitation strategies

The business-driven network brokers A and B provide companies with knowledge stemming from outside the business networks (*bridging*), whilst safeguarding a trustful atmosphere inside, in order to support knowledge-sharing, including tacit knowledge (*bonding* and *exclusion*). However, the policy-driven network brokers C and D are particularly important for early-stage networking and the sharing of explicit knowledge among companies. They render knowledge from outside the network accessible to the companies (*bridging*) but are to a lesser extent

engaged in the bonding of relationships within the network and the exclusion of harmful companies or organisations.

Limitations for network brokers

The private, business-driven network brokers A and B face limitations due to resource scarcities, a high dependence upon external funding and a low embeddedness in policy structures in the organisationally thin regions. With public policy-driven network brokers C and D, however, different limitations to their business networking activities emerge. One challenge is their dependence upon internal funds, which implies an alignment of their activities with regional policy priorities, rather than the needs of companies. Furthermore, the broad networks that these brokers facilitate might result in a lower degree of exclusiveness of relationships for companies and challenge their willingness to share tacit knowledge, notably with SMEs.

Contribution to the Literature

These findings contribute to filling the gap in the existing literature on actors that manage or facilitate business networks, notably among SMEs, in organisationally thin regions. While most empirical studies either specify or confirm the “stylised facts” on organisational thinness (De Noni *et al.*, 2018; Grillitsch, 2016; Isaksen and Karlsen, 2016), the present case study suggests that these conditions may be improved by using network brokers. Because the findings are in line with existing research on brokers in SME networks in rural-peripheral regions (Mariani, 2016; Huggins and Johnston, 2009), they also support the statement made about weak relationships between companies in organisationally thin regions that need to be systematically developed (Tödting and Trippel, 2005). Moreover, the case study confirms the inter-relatedness of business networking and knowledge-sharing as pre-requisites for learning and innovation of companies with organisational thinness (Isaksen and Karlsen, 2016).

Conclusion

The present paper explores the question of how different types of network brokers facilitate business networking and knowledge-sharing in organisationally thin regions. This question is addressed with the help of the concept of network brokers (Burt 2005, 2000a, 2000b), applied to business networking and knowledge-sharing. A qualitative study of four network brokers

from three organisationally thin German small-scale regions was the empirical context for this enquiry, and it gave birth to the following implications.

Theoretical Implications

An overarching result is that network brokers identify and bridge institutional gaps in organisationally thin regions by connecting companies with different knowledge bases, strengthening inter-company relationships and establishing knowledge pools that benefit the various companies represented in the regions. Two types of network brokers – private, business-driven *versus* public, policy-driven brokers – emerge in the context of organisational thinness, and both types are rather complementary with regard to the facilitation of business networking and knowledge-sharing. However, they use different strategies, depending upon their embeddedness respectively lack of embeddedness in regional policy structures. With this finding, the paper extends the “stylised facts” about organisational thinness (Isaksen and Karlsen, 2016; Tödting and Trippel 2005) by showing how different network brokers may help overcome SME-related and regional challenges due to a low density and quality of business networks and weak knowledge production. Knowledge production in such regions may be increased and lifted qualitatively through the engagement of network brokers from private and public domains, as the findings suggest.

Policy Implications

Private, business-driven network brokers should be embedded in regional policy structures and have better access to funding. Otherwise, they might be unable to expand their activities to a wider circle of companies, which, however, will be important to raise the quality of business networking and knowledge-sharing in organisationally thin regions. Moreover, public, policy-driven network brokers might need a higher degree of autonomy in relation to regional policy priorities because they can facilitate broad business networks based upon their embeddedness in the policy structures. Finally, as a conclusion, supporting both types of network brokers in organisationally thin regions is essential for giving sustainable impulses to economic development, notably with regard to the innovation processes of SMEs.

Research Limitations and Outlook

Since the empirical context is three regions from the same country, additional studies should address similar regions, which qualify as organisationally thin, in other countries and across several countries to validate the relevance of the network broker types identified. Moreover, further research on network brokers is needed along two research streams. First, in the light of the limited empirical studies on organisationally thin regions, a more detailed typology of network brokers in such contexts can contribute to a better understanding of the concept itself and its meaning for the facilitation of business networks and knowledge-sharing. Second, the conceptualisation of network brokers by Burt (2005, 2000a, 2000b) needs to be expanded to other network facilitating actors described in the small business management and entrepreneurship literature (for example, Nilsen and Gausdal, 2017; Belso-Martinez *et al.*, 2018, 2015), given that some activities lie outside the brokerage roles that Burt (2005) originally assigned to brokers.

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Appendices

Tables provided in separate files.

Table 1: The four network brokers

Table 2: The third-party experts

Table 3: Empirical findings from the interviews – Raw material *versus* theoretical categories

ⁱ The present paper is a spin-off from a longitudinal study on companies in rural-peripheral regions, which took place over this period. Already from the early stages of the project duration, the topics of network brokers and organisational thinness emerged from this research project in the early stage, which was the reason why they were taken up separately.