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**Regional clusters in traditional industries and cluster policy:
The case of the East German musical instruments industry**

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Abstract:

Innovation and knowledge-based networks are key elements of many cluster policy initiatives. Many of such regional policy approach ex- or implicitly address high-technology and key industries, whereas traditional sectors are seemingly less affected by these programmes. For Germany, the InnoRegio programme is a prominent example for an innovation-based cluster policy approach. While many of the networks and clusters that have received InnoRegio funds are high-tech industries, one case of a less technology-intensive and more traditional InnoRegio network initiative is “Musiconvalley”, the musical instruments industry in the East German Vogtland region with historical roots and routines and competences in the manufacturing of traditional classical musical instruments. Based on the case study of the musical instruments industry and the “Musiconvalley” network, the present paper describes in how far innovation-based cluster policy programmes were able to initiate an innovation- and knowledge-based collaboration of local actors towards cluster-type interaction and to strengthen the innovative capacities of the industry. The paper addresses three inter-related elements: the complexity of the inter-actor relations and the continuation of the funding effects; the general suitability of the programme for the network of actors; and the role of the network management. Using the case of the Vogtland-based musical instruments industry as the point of reference, the study aims to shed light on the effects and limitation of innovation-based cluster policy approaches, as applied to traditional, less technology-intensive industries.

Keywords:

Cluster policy, regional clusters, traditional industries, East Germany

First draft – please do not quote!

1. Introduction

Regional clusters and networks prove to be a contemporary topic of interest for scholars and practitioners alike. Albeit fundamentally criticized for the lack of conceptual concreteness (Asheim et al. 2006; Malmberg/Power 2006; Benneworth/Henry 2004; Martin/Sunley 2003), there is an abundant body of academic literature that mainly focuses on high-tech or knowledge-intensive clusters (for example, Powell et al. 2002; Bathelt 2001; Keeble/Wilkinson 1999; Saxenian 1994). However, far less attention is being paid to networks and clusters, for example, in traditional and less technology-intensive industries. Innovation and knowledge-based networks are key elements of many cluster policy approaches that have become increasingly popular as regional policy tools. Many of such policy approach ex- or implicitly address high-technology and key industries, whereas traditional sectors are seemingly less affected by these programmes. For Germany, the so-called InnoRegio programme is a prominent example for an innovation-based cluster policy programme. While many of the networks and clusters that have received funds from the InnoRegio framework are high-tech industries, one case of a less technology-intensive InnoRegio initiative is the musical instruments (MI) industry in the East German Vogtland region (“MusiconValley”).

The present paper focuses on the case of the MI industry that is locally concentrated in the Saxon Vogtland region. It was chosen as the unit of analysis due to the peculiar characteristics of this case. With traditional classical musical instruments as main products, the local production system is characterized by traditional and labour-intensive artisan techniques and small-scale manufacturing. Hence, the MI firms serve a niche market what strongly limits the innovative capabilities of the local industry. Besides its production system and firm structure, the historical development and the local social capital provide an idiosyncratic character of the MI industry. Against this background, the study analyses in how far innovation-based cluster policy programmes are able to initiate an innovation- and knowledge-based collaboration of local MI actors towards cluster-type interaction and to strengthen the innovative capacities of the industry. The paper addresses three inter-related elements: the complexity of the inter-actor relations and the continuation of the funding effects; the general suitability of the programmes for the network of actors; and the role of the network management. Although there has been a complementary evaluation of the InnoRegio programme, there are no case studies available that exemplify the effects and limitations of this cluster policy instrument for regional clusters, in particular the traditional and low-tech ones. The methodological approach of this paper is exploratory and qualitative, using primarily a set of field interviews with local actors. Although largely based on cross-sectional data, the study draws as well from an evolutionary stance, highlighting selected developments in retrospective. Contrary to other studies on regional clusters and networks, this study does not map in detail the network relationships by means of a fine-cut network analysis or a typology of the linkages. Neither is the present paper a policy paper that discusses cluster policy as such. Taking these limitations into account, the primary aim of the present study is to shed light on the effects and limitation of innovation-based cluster policy approaches, as applied to traditional, low-tech industries, using the case of the MI industry as the point of reference.

The remainder of the paper is structured as follows: In Chapter 2, the theoretical foundations of the study are presented. Chapter 3 gives an overview of the historical roots and the development of the MI industry as well as its present structure and

“Musiconvalley”’s funding history. Chapter 4 describes the research design and the methodology of the study. The main empirical results are given in Chapter 5 focusing on three aspects: the complexity of the inter-actor collaboration, the impact of the funding programmes on these interconnections and their continuation; the general suitability of the programmes for the local MI industry; and the role of the network management. These findings will be summarized and discussed in the final Chapter 6.

2. Theoretical foundations: Regional clusters, traditional low-tech industries and cluster policy

Despite the ongoing debate about the theoretical foundations of the cluster concept and its empirical validity, there is widespread recognition of the basic elements of the concept. Its basic foundations are most often drawn back to Alfred Marshall’s “industrial districts” (Marshall 1966) and Michael E. Porter’s (1990) notion of a cluster. Therefore, the working definition of a cluster used in the present paper starts off from the key elements of the “Porterian” and “Marshallian” types of networks and clusters, as is expressed in Porter’s definition of clusters as “*geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions [...] in a particular field that compete but also co-operate*” (Porter 2000: 15). This definition includes vertical and/or horizontal interconnectedness of firms, industries and (public/private) institutions as a network dimension. In addition, spatial proximity of actors that seems to generate localization advantages is a second, geographical dimension associated with regional clusters (Malmberg/Maskell 2002). Particularly Porter (1990, 2000) claims that, despite inter-actor collaboration, cluster relationships, as a rule, imply a certain degree of rivalry among the firms. Accordingly, Porter argues that local rivalry fosters the innovative capacity of the cluster and enhances the competitive advantage of the cluster firms and the cluster as a whole. A related concept refers to the Post-fordist, neo-Marshallian “industrial district” (Belussi 2006; Marshall 1966). The mainstream of the literature about industrial districts deals with the Italian example, the “Third Italy” (for example, Camagni 1991; Becattini 1990; Brusco 1990). The flexible specialization (Piore/Sabel 1984) of smaller to medium-sized firms in a local production system provides a contrasting model to the Fordist mass production paradigm. Local, often family-run firms that operate within close geographical proximity, but also in a specific social community with common values and an idiosyncratic culture work in traditional and artisan sectors (for example, textiles and clothing, furniture). Nevertheless, these non high-tech “districts” gain competitive advantage through local collaboration, and their dynamics lie in the ability of the firms and actors to rapidly and flexibly adapt to new market needs and changes in the external environment.

Besides co-location and inter-actor linkages, the “post-Porterian” literature highlights other elements of regional clusters and districts that are, in particular, associated with an dynamic view on cluster development. The idea of localized learning, knowledge creation and innovation is considered as a main stylized fact about regional clusters (Malmberg/Maskell 2006; Malmberg/Power 2005). It is argued that spatial proximity facilitates knowledge flows between actors, which often take place via face-to-face interaction. Therefore, physical closeness spurs the exchange of knowledge and generates new knowledge. Moreover, clusters are embedded in a specific socio-economic context with “*shared norms and values that facilitate coordination and co-operation among individuals, firms, and sectors for their mutual advantage*”

(Wolfe/Nelles 2008: 375). Hence, embeddedness (Granovetter 1985), close personal relationships and mutual trust within social relationships are vital elements for the cluster dynamics that can be seen as significant precondition and collective assets for local co-operation. Similarly, a common “culture” within the social community is another crucial element of the cluster dynamics (Pilon/De Bresson 2004; Hospers/Beugelsdijk 2002). As becomes clear, regional clusters are more than just local industrial agglomerations. Apart from localization advantages and linkages across industries, a local “milieu” (Camagni 1991) and a functioning social network are essential prerequisites to generate the theoretical advantages, such as knowledge transfer, or innovation through collaboration.

In addition, an evolutionary perspective on clusters highlights the history of a cluster and, in particular, its potential path-dependencies (Menzel/Fornahl 2010). From an evolutionary development view, path-dependency may result from firms sticking to ‘old’ routines and trajectories which may lead to a decrease in the innovative activities and a decline of a cluster. According to Menzel and Fornahl (2010:227), “*a declining cluster has (...) lost the ability to sustain its diversity, its ability to adjust to changing conditions as well as its potential for an independent renewal*”. The evolutionary life-cycle model of the cluster dynamics (Menzel/Fornahl 2010) argues that, at the actor or cluster level, organizational change within the cluster through learning and renewal of firm- or cluster-specific routines is a means of overcoming a potential decline. The threat of a decline of a cluster is evident for ‘old’ industrialized regions with established clusters (for example, Tödtling/Trippel 2004; Sadler 2004; Seri 2004), but also for ‘mature’ clusters in traditional industries (for example, Italian musical instruments clusters, Tappi 2005, 2004; the shipbuilding industries, Hassink 2005; Karlsen 2005 van Klink/De Langen 2000;; textiles and footwear, Boschma/Ter Wal 2007; Schamp 2005; or steel industries, Sadler 2004). These industries are typical medium-low (for example, metal and shipbuilding) and low-technology (food processing, textiles and clothing) industries, according to the OECD classification of the manufacturing industries, exhibiting rather low R&D intensities (OECD 2009). Therefore, cluster policy that enhances organizational change, stimulates learning processes and increases the innovative capabilities of the cluster may lead to a change in routines and serve as a means of overcoming a potential decline for mature clusters or clusters in traditional, low-tech industries.

Hospers/Beugelsdijk (2002: 382) give a very broad definition of cluster policy, speaking of “*all those efforts of government to develop and support clusters in a particular region*”. In many cases, cluster policy evolved from different policy approaches, such as regional, industrial or technology policy (Kiese 2008a; Boekholt/Thuriaux 1999). As a result, cluster policy is difficult to categorize, but consists of very different programmes and measures aimed at generating or enforcing cluster-type collaboration. This is highlighted by some definitions in the literature: As Peck/Lloyd (2008: 396) state, “*there is no single ‘generic’ cluster policy, but rather a myriad of interventions that prove difficult to classify*”. In a similar vein, Fromhold-Eisebith/Eisebith (2005: 1252) speak of cluster promotion as “*any coordinated set of measures, in whatever constellation and style of implementation, that supports the development of a regional industrial agglomeration towards ideal features of a cluster (...)*”. A broader, but related concept is that of a cluster initiative that refers to any institutionalized promotion of a cluster (Kiese 2008a; Sölvell et al 2003). Accordingly, cluster promotion may result from institutionalized policy

initiatives or from private company- or industry-driven efforts (Fromhold-Eisebith/Eisebith 2005).

While cluster policy has become increasingly popular particularly as a regional policy instrument, academics, however, hint at its limitations as a means of fostering regional development. There are different arguments that are brought forward. Due to the “conceptual confusion” (Malmberg/Power 2006: 54) about the cluster notion and the vagueness of its definition (Asheim et al. 2006; Martin/Sunley 2003), cluster policy often starts off from a slippery and not-well defined construct about what constitutes a cluster or a network. As Lundquist and Power (2002) state, the use of clusters as a tool for regional development “(...) *has been a rather partial process with practitioners and actors using a very selective and overly simplified version of the concept*” (Lundquist/Power 2002:686). Although the “Porterian” definition with strong and formalized local ties is not more than an ideal type, in practice, however, it seems that all kinds of linkages and mere industry agglomerations are considered as clusters. Van Klink/De Langen (2001) claim that inter-firm collaboration within clusters need to have a minimum of strategic co-ordination and elements beyond “*frequent arms-length transactions*” (Van Klink/De Langen 2001:451). Malmberg/Power (2005) find in this context that local inter-firm relationships tend to focus on the simple exchange of inputs and services, and not primarily on knowledge- and R&D related transactions. In particular, there is also a mismatch between the theoretical propositions about positive cluster effects and the empirical evidence that is rather scarce and selective (Fromhold-Eisebith/Eisebith 2008; Asheim et al. 2006).

Some arguments given by scholars critically question the locality as the main source of competitiveness and learning- or knowledge-induced dynamism in the concept (Fromhold-Eisebith/Eisebith 2008; Kiese 2008a,b; Malmberg/Power 2005; Wolfe/Gertler 2004). Empirical evidence does not support an “automated” local knowledge transfer via cluster relationships and collaboration, but rather supports a co-existence of local and global ties of cluster actors (Fromhold-Eisebith/Eisebith 2008; Malmberg/Power 2006; Malmberg/Power 2005). In particular, Fromhold-Eisebith/Eisebith (2008: 83) argue that external partners may offer better opportunities to generate innovation than local ones. Similarly, it seems that local rivalry does not necessarily stimulate innovation, and even Porter (2000) acknowledges that many cluster actors are no direct competitors.

Moreover, it is argued that successful cluster policy needs to consider the specific regional context (Hospers/Beugelsdijk 2002). In practice, however, many policy approaches take (inter)national success stories (for example, the Silicon Valley high-tech cluster type) as points of references or benchmarks for policy-induced cluster formation. It is often ignored then that successful best-practice cases possess of specific structural assets that are difficult to copy (Hospers/Beugelsdijk 2002). Altogether, the transferability of such approaches using best-practices as blueprints is more than questionable. As an important prerequisite, a common cluster identity, a kind of “*uniqueness of the regional culture*” (Hospers/Beugelsdijk 2002: 393 ff.), is crucial for successfully implementing cluster policies and establishing a common cluster “brand” (Lundquist/Power 2002). However, neither the creation of a cluster identity and common trust nor the generation of network-like collaboration can be enforced by means of cluster policy approaches (Fromhold-Eisebith/Eisebith 2008).

Depending on the industrial structure of a region, policy in general and cluster policy in particular that focuses on “old economies” within the region may run danger to strengthen existing path-dependencies – even generate a lock-in situation (Grabher 2003) – and counteract a dynamic cluster development (Fromhold-Eisebith/Eisebith 2008; Isaksen 2004). Likewise, this risk becomes evident for highly specialized regional clusters that potentially need to adapt to changing technologies or are subject to demand-side shifts (Kiese 2008a).

In summary, there is little evidence of the actual impact of cluster policy, nor are the channels through which cluster policy influences the cluster actors empirically well explored (Asheim et al. 2006). Locational advantages that are supposed to represent one important source of cluster dynamism are not (always) verifiable (Fromhold-Eisebith/Eisebith 2008). As any regional policy, cluster policy typically consists of mainly “hard” measures, such as subsidies, which may be subject to rent-seeking activities. Lastly, the formation of cluster-type collaboration via cluster policy or cluster initiatives implies a long-term process (Peck/Lloyd 2008), and therefore, the success of policy measures can be only evaluated in the long-run (Fromhold-Eisebith/Eisebith 2008).

3. The MI industry and its historical development

3.1. Historical roots and the present structure

The Saxon Vogtland area has a strong history in the manufacturing of classical musical instruments with the foundations dating back to the 17th century.ⁱ Since the 18th century, the core of today’s local musical instruments industry specializes on classical musical instruments. In particular, the 19th and the early 20th century can be seen as the heydays of the industry when the region was a major center of production for musical orchestra instruments in Europe. During that period, the entrepreneurial landscape was characterised by a co-existence of small family-owned artisanry and larger industrial-scale manufacturers (Schramm 2006). After World War II, larger-scale production generally dominated, with state-owned manufacturers focused on mass-producing low- or middle-quality instrumentsⁱⁱ. Moreover, there were the small handicraftsmen, partly integrated in the larger units, which served an upscale high-quality niche and applied traditional manual techniques. At that time, exports of all musical instruments were centrally organized by the trade agency DEMUSA. With the end of the socialist period, the MI industry underwent a period of tremendous structural change in the early 1990s with massive de-industrialisation, layoffs, and corporate restructuring. Notably the larger enterprises faced a loss of their pool of their qualified labour. Irrespective of their size or organization, all MI firms were confronted with a breakdown of their former sales markets. Due to the centralized activities of the DEMUSA agency, there had been a lack of direct contacts to customers and markets, and firms needed to seek new foreign markets and build up new customer relationships from scratch. Albeit affected by the transformational break, the core of the industry stayed in the marketⁱⁱⁱ, consisting of the smaller and, now again, privately run craft-oriented enterprises and the body of the newly privatized industrial-scale production units. In the 1990s, there were two major relocations of larger-scale producers from Bavaria to the Vogtland region. Today, stringed/bowed, plucked and wind instruments, accordions and bandoneons are the main products of the MI industry, complemented by specialized

suppliers of accessories and service providers (for example, repairing services) (Table 1).

Table 1 about here

Still today, the industry covers two different types of MI enterprises: One group of enterprises (group 1) consists of the majority of the small and micro businesses that exclusively uses inherited and traditional sets of artisan manufacturing techniques. These techniques and the specific know-how constitute the core competencies of the firms and are transferred from generation to generation. Typically, these often family-run manufacturers produce in small batches and offer high-end master-level instruments that are tailored to the needs of their customers and sold directly to artists, lecturers, students at conservatoires, etc. Using the common categorization of *incremental* versus *radical* innovation (Ettlie et al. 1984), these firms typically conduct incremental product or process improvements “on the shop floor” and, consequently, exhibit low investments in R&D. The second group (group 2) consists of the larger, industrial-scale manufacturers, typically with higher R&D expenditures. Although major part of these enterprises serves a medium- to high-quality market segment as well, they produce at larger scale and sell their instruments to a higher extent through retail or wholesale channels. While many of the small artisans exist for generations, the larger enterprises have typically been founded in the early 20th century, or emerged as re-privatized parts of the former state-owned enterprises after the German re-unification.

The entrepreneurial landscape is complemented by a dense network of institutions, again some of them with historical roots. Professional schools for training MI making have already been established in the 19th century. Today, one vocational training college is still located in the area. In 1988, a subsidiary of an engineering training college for MI making was founded in Markneukirchen that has been later transformed into a subsidiary of a university of applied sciences with its headquarters located around sixty kilometers apart.^{iv} Similarly, an applied R&D institute, founded in the 1950s, survived the end of the socialist period and has its operations in the region. The institute conducts contract research in acoustics and vibration engineering, with materials and technologies. Besides R&D and training institutions, several smaller musical orchestras, bands and associations, a museum for historical musical instruments and international musical contests (for instance, the International Instrumental Competition Markneukirchen for strings and wind instruments, or the International Accordion Competition Klingenthal) complement the institutional landscape.

Like the German MI industry as a whole, the Vogtland-based MI industry of today is characterised by a predominance of small to medium-sized enterprises (Table 2)^v. The Saxon MI industry that is locally concentrated in the Vogtland area is a very small market with more than 100 firms, a total employment of 1,200 persons, and a turnover of around 7.3 million Euro in 2008 (Statistical office of the German Bundesland Saxony). The MI industry exhibits average export ratio of 58% in 2008 (Statistical office of the German Bundesland Saxony). As a niche industry with low intensities in terms of employment and turnover, the MI industry, as a rule, is not covered by regional policy initiatives. According to the OECD classification of industries with different technological intensities, the MI making industries is ranked as a low-technology category with low levels of R&D expenditures (OECD 2005).

Severe challenges to the MI industry are demand-side shifts (a falling demand for classical musical instruments and a rising importance of electronic products and digitalized music production, Stange-Elbe/Bronner 2008) and, as a result, a stagnating or shrinking market as well as fierce competition with Asian and Southeastern European producers. In order to meet these challenges, the majority of the firms specializes at the high-end of the market with a high degree of customization of the products and does not compete with low-cost competitors.

Table 2 about here

3.2. The funding history

Musiconvalley's funding history started with the InnoRegio programme in 2000. The InnoRegio programme (1999-2006) has been launched by the German Federal Ministry of Education and Research with the aim to support Eastern German SMEs towards establishing innovation-based networks within their specific regional context and, hence, strengthening regional development in East Germany (Eickelpasch et al. 1996, 2001). The programme focused on improving the innovative capacity of firms that were embedded in local cluster- or network-type relationships of firms, R&D and training institutions and local communities (Eickelpasch et al. 1996, 2001). It addressed regional networks with specific unique features but had no topical or regional limitations (Bruch-Krumbein/Hochmuth 2008; Dohse 2007; BMBF 2005). One outstanding feature of the programme was its bottom-up approach towards identifying and establishing the networks, organized as an open contest. After receiving over 400 applications by potential initiatives, a total of 23 final InnoRegios received funding to start their conception of a cluster initiative for a period of six years (2000-2006), among them the initiative "Musiconvalley" with a total funding amount of 9.2 mio Euro. The cluster promotion generally rested on two pillars (BMBF 2005). One pillar was a funding of a central branch office of the network management that was designed to have the initiative govern the network participants, establish the network, consult the participants, etc. A second pillar aimed at the project-related funding with a focus on R&D and additional areas (for example, training and qualification of human capital). The finally selected initiatives stem from different sectors and include both high-tech (for example, biotechnology) and medium- to low-tech industries (e.g. shipbuilding, textiles) and service sectors (for example, health services).

In 1999, the initiative "Musiconvalley" was founded as an association by a private consulting agency and applied for funds from the InnoRegio programme. With its selection as one "InnoRegio", it was finally established in 2000. 58 projects were funded, among them 75 per cent in the field of R&D. These projects referred to developing new instruments (for example, new celli and contrabasses or historical woodwind instruments) or new materials (for example, specific varnishes or mechanised joining techniques). Other, non-R&D projects were associated with qualifying and training personnel in the MI industry or seeking synergies between musical instruments production and health care (with the latter being another small-scale sector in the Vogtland area). During the initial funding period, the main activity of the "Musiconvalley" initiative was to offer local enterprises consulting services and to connect them with funds from the programme line. Projects were mainly organized as collaborative projects of local firms, R&D institutions and universities.

Before the end of the InnoRegio funding period in 2006, the management of the “Musiconvalley” initiative acquired a different network-based funding from the so-called “NeMo” programme (Netzwerk Management Ost). The NeMo programme has been established in 2002 by the German Federal Ministry of Economics and Technology. Similarly to InnoRegio, it aims at fostering innovation through collaboration and networking of Eastern German SMEs and has no topical or industry-specific restrictions (GIB/SÖSTRA 2005). The minimum requirements of the programme conception are six Eastern German enterprises to connect as a network. Contrary to the InnoRegio programme, funding solely refers to the network management and its network-building activities with the member firms. Moreover, the NeMo programme does not have an explicit focus on a specific regional unit. For the “Musiconvalley” initiative, NeMo funds were granted for two projects, the NEMATEC project (2006-2009, with a total of 3.4 mio. €), followed by a second “MI Future” project (2009-2010, with a funding amount of 1.3 mio. €). Since this smaller follow-up funding exclusively refers to the network management, the “Musiconvalley” initiative offers individual project consulting for MI firms and connects them with funding from a mix of other national or state-level programmes in the fields of innovation policy or SME policy (Pro Inno, ZIM, SAB). Most R&D projects conducted during the NEMATEC and MI FUTURE funding periods are collaborative projects of MI firms with external research institutes and universities. As compared with the initial InnoRegio programme, the funding volume significantly decreased with the NeMo programmes that have been acquired, and the number of R&D projects dropped as well, as shown by Figure 1. This development goes along with a transformation of the network management “Musiconvalley” from a public, non-profit association during the InnoRegio period into a privately run, commercial organization. In particular, consulting services that the network management has offered for free or for only small financial contribution in the past are only available since 2006/2007 for firms at higher cost.

As an additional programme, the initiative acquired funding in 2009 from a successor of the former InnoRegio programme (Figure 1). The so-called Innovation Forum (“Innovationsforum”) primarily aims at supporting innovative alliances and networks in their start-up stages of their development (Burkhardt/Hillmann 2009; BMBF 2009; Dohse 2007). Funds refer to the organization of a conference that brings together experts in the field from the business, research, and political communities and are designed as an impetus-setting for establishing a network (Burkhardt/Hillmann 2009: 308). Within this project entitled as well “MI Future”, a symposium with local MI firms, other practitioners, politicians and representatives of R&D institutes and universities from the region and Saxony was held in 2009. In parallel, “Musiconvalley” is establishing a different field of activities that combines MI manufacturing with tourism. Unlike the R&D-related activities of the network management, this second business area shall sustain without funding. As is planned, small music orchestras from Germany shall be offered factory tours with local manufacturers and other touristic highlights of the region.

Figure 1 about here

4. Research design and methodology

The empirical part of this paper takes a qualitative approach based on a cross-sectional dataset of 15 field interviews with 10 selected MI firms and five related

institutions^{vi} located in the Vogtland region. A database offered by the network initiative “Musiconvalley e.V” was used to select the firms and institutions as a non-random sample. In addition, other material, such as reports, internal documents or information on webpages supplemented the field observations. The selection of companies was influenced by the overall aim to represent different patterns and types of enterprises and institutions, according to several criteria: First, the firms should incorporate different structural characteristics of the MI enterprises, ranging from family-run micro businesses to larger producers. Secondly, besides the core of the MI manufacturing, related industries, for example, producers of accessories, and trade agencies were included. Among the MI enterprises, both firms that actively take part in the “Musiconvalley” initiatives and firms without such activities were selected. As additional institutional experts, the managing director of the Musiconvalley initiative (MV), an associated R&D institute (Institut fuer Musikinstrumentenbau Zwota, IfM), one full professor for MI making from the local subsidiary of the Zwickau University of Applied Sciences (UAS) as well as two experts from local business development agencies (BDAs) were chosen. These interviews were conducted in the second half of 2009, in some cases complemented by follow-up phone calls in early 2010.

5. Empirical part

5.1. Complexity of the inter-actor linkages and the continuation of the funding effects

The complementary evaluation of the InnoRegio programme concludes that the programme was successful in initiating innovation-based collaboration and strengthening the innovative potential of the majority of the InnoRegio networks (BMBF 2005: 11). Moreover, the authors find evidence that, in many cases, collaboration is sustainable after the funding period (ibid.). The questions of whether the cluster policy measures were able to foster innovation-based collaboration and whether collaborative engagements in the field of innovation could be sustained after the initial funding period will be critically reviews, based on the case findings.

5.1.1. Complexity of the inter-actor linkages

From a theoretical stance, small enterprises can compensate a lack of economies of scale by means of generating economies of scope through (external) collaboration (Staber 1996; Sydow 1996). According to this line of argumentation, the MI firms should be able to defend their market niche by collaborating in the fields of production, R&D, marketing, etc., generating synergies and, as a result, offering a broad range of highly specialized products. The theoretical argument is that, moreover, firms gain better access to resources, and the network as a collective gains power, for example, in negotiations with suppliers or customers (ibid.). As an ideal type, network-type collaboration combines advantages of higher flexibility with greater efficiency. As an important prerequisite, external network collaboration requires mutual trust between actors. Moreover, network collaborators sharing resources that pertain to their core competencies risk losing part of their individual autonomy.

For the MI industry, production- and R&D-related collaboration as a division of labour across segments and even within the same segment is feasible only to a limited extent, due to the highly specialized techniques and processes. In addition, since particularly the craft-oriented producers apply techniques and use materials that constitute their core competencies and differentiate them from their competitors, these firms are generally not willing to uncover and share this idiosyncratic know-how. This is emphasized by one interviewee (D): „*Handcraftsmen prefer experiencing on their own in their shops instead of applying for external funding.*” The capabilities for collaboration also strongly depend on the instrument category. For example, brass and woodwind instruments, accordions and bandoneons are produced using more accessories and semi-finished parts than strings and plucked instruments. Hence, the potential for external collaboration varies across these product segments. In addition, the structural differences between the two groups of enterprises, i.e. the industrial-scale producers (group 2) versus the craft-oriented manufacturers (group 1), reduce the collaborative potential for R&D or production-related networking.

The interviews clearly highlight that innovation- and R&D-related collaboration in the MI industry is characterized by rather “weak ties” and, in addition, affected by strong barriers to collaboration. In many cases, inter-firm connections in the case study sample are informal, loose or arm’s length collaboration in the field of R&D (e.g. between C and H, or F and I). In some cases, R&D-related collaboration has been initiated during the InnoRegio funding period (interview with C, E, G and H). In other cases, R&D collaboration was established independent of the funding (interview with B, I). Collaboration outside R&D activities refers to small-scale co-production and licensing, or a pooling of purchasing and sales activities (interviews with B, G, H, I). In individual cases, there is evidence of “strong” local ties as innovation-based network collaboration between SMEs; this is illustrated by the case of the artisan manufacturer C who collaborates at different levels with other small Vogtland-based enterprises that are per se rivals (interview with C). Besides pooling of their purchasing and sales activities between the firms, network-type collaboration exists with several manufacturers specializing at certain machinery or employees or conducting common R&D projects. So far, any collaboration in the field of R&D is co-financed by the “Musiconvalley” funds (InnoRegio programme and its follow-ups). There are also linkages between MI manufacturers and local sales agencies and a co-operative; serving the smaller manufacturers in particular, these trade firms sell locally produced instruments on domestic markets or abroad (interviews with G, H). Moreover, the firms in the sample have linkages with other industries, for example, machinery and metal engineering, electrical engineering, either in the field of purchasing and sales, or R&D (interviews with F, G).^{vii} Besides inter-firm collaboration, particularly the larger industrial MI manufacturers (for example, F, G, I) and technology-intensive firms from related industries (for example, E) have collaborative relationships with a local R&D institute, the IfM. Some firms and institutions also collaborate with universities and research institutions outside the Vogtland area, for instance, the universities at Dresden or Chemnitz (interviews with C, E, IfM). Projects with R&D institutions were initiated by the Musiconvalley initiative. The UAS is a second local research institution with connections to the local industry, be it that firms combine a vocational master education with a university-level degree course (D, F, G, I), be it as R&D collaboration with the IfM (interview with IfM).

In accordance with other studies on regional clusters (Brown 2000; Turok 1993), the overall finding is that local inter-firm linkages are rather weak. Consequently, several

barriers towards external collaboration within the local network can be identified, as shown by Table 3. Although local rivalry increases the pressure to increase the quality and generate innovation, in the case of the MI industry, local rivalry obviously lowers the potential for strategical collaboration (interviews with MV, A, D, F, I). This is notably true for manufacturers producing the same instrument class. As is stated by several respondents, the willingness to externally collaborate varies across firms: While the majority of the artisan producers exhibits a limited openness towards sharing firm-specific knowledge and practices within collaborative arrangements, the larger, industrial-scale manufacturers are more open towards adopting and implementing new technologies and conducting R&D as external collaboration with other manufacturers or R&D institutions in the field (interviews with MV, D, I, IfM). In addition, a low strategical orientation of many of the small to medium-sized MI makers acts as another barrier to local collaboration (interviews with B, H, I and UAS). As a result, local collaboration is rather project-based, informal and based on supplier or producer relationships, but not primarily strategical, as compared to external collaboration with firms and institutions from outside the Vogtland area.^{viii} In this respect, some respondents indicate that local ties are not as important as connections with firms from outside the region (interviews with A, B, I). This is true for both established manufacturers and “newcomers”. Those enterprises that have relocated their facilities to the Vogtland area or have been newly founded are not integrated into local social and personal networks and therefore exhibit a preference for collaboration outside the region. Since collaboration is often initiated by personal contacts and relationships, “outsiders” willing to co-operate need to invest time and resources to build up contacts with “insiders”. Two cases illustrate this lack of social networking: The respondent of A, a manufacturer that relocated its facilities from Bavaria to the Vogtland area in 2001, states that his enterprise “*is not inside the local network*”. In particular, this enterprise has no local inter-firm collaborative activities in the field of R&D, except a purchasing relationship and local contract manufacturing. In a second case, the manager of a larger manufacturer who moved to the area from Western Germany (B) depicts his difficulties “*with coping with the low openness of many traditional local firms towards collaboration*”. In some other cases, a structural misfit between potential collaborative partners, in terms of scale of production and market segment, market and sales strategy, etc., reduces the capabilities for production- and innovation-related co-operation. This is illustrated again by the case of A, a larger manufacturer mass-producing instruments at foreign locations as beginner level instruments and selling these products with retail trades in Europe. As is stated by the interviewee, the production and sales structure of this enterprise contrasts that of many of the smaller craft-oriented firms (those firms operating at the high-end and master level niche typically sell their tailor-made instruments over the counter or collaborate with specialized sales agencies).

Table 3 about here

As a reaction towards the barriers to external network collaboration, some of the firms that are willing to co-operate at a strategical level shift their focus from local collaboration to outward relationships (for example, A and I). However, it also becomes obvious that the network management “Musiconvalley” supports firms that are willing to co-operate to initiate local collaboration, even “outsiders” (interview with B). These findings show that the cluster initiative that focuses on supporting R&D collaboration of local firms and institutions faces significant obstacles, a restriction that has been acknowledged as a significant boundary of cluster policy approaches

(Fromhold-Eisebith/Eisebith 2008). It becomes clear that policy measures solely based on fostering innovation through collaboration without taking into account those barriers to collaboration are not sufficient to stimulate the dynamism of the MI network.

5.1.2. Continuation of the funding effects

The idea of the initial InnoRegio cluster programme was to limit funding to a period of six years in order to secure a stable and solid basis for inter-actor collaboration while avoiding short-term rent-seeking effects. The interviews reveal that the termination of the programme is associated with a low continuation of innovation-based inter-actor connections that have been established during the InnoRegio era.

The intensity and frequency of inter-firm collaboration between MI manufacturers in the field of R&D decreased after the end of the initial funding period (2000-2006), as is exemplified for enterprise G: The firm conducted InnoRegio-funded R&D projects with other MI manufacturers. After the InnoRegio period, G significantly reduced its activities with the network initiative and substituted formerly external collaboration in the fields of R&D and personnel training/qualification for internal transactions. Moreover, the linkages between MI firms and institutions (IfM and UAS) as well as the linkages between the network participants and the network management got weaker (interviews with G, H, UAS, IfM, BDAs). This finding is exemplified for the IfM: During the InnoRegio funding period, there has been an intensive collaboration between the institute and many MI enterprises in the Vogtland region (for example, company H), both with larger producers and artisans. However, with the end of the initial funding period, nearly all of these local relationships were cut, in particular connections with small manufacturers. Similarly, in some cases, relationships with R&D institutions outside the region, for example, with the University of Dresden, that have been established during the InnoRegio period did not persist afterwards (interview with H). However, in some individual cases again, firms and institutions were able to continue collaboration based on R&D projects, for example using follow-up funding of the NeMo projects or individual project-based funding from other sources (enterprises C, E and I), or independent of funding (IfM and USA). As is particularly emphasized by the BDA experts (interviews with BDAs), regional impact of the funding as indirect effects in terms of job creation and investment were limited to the initial InnoRegio funding period.^{ix}

As a consequence of the low continuation of local linkages, those cluster actors that were formerly involved in collaborative activities initiated by the InnoRegio programme show different reactions. Some participants increased their activities with firms and institutions from outside the region (for example, the IfM). Other actors have reduced their role to a more passive part and see the network management as a service provider with reduced capabilities. One interviewee (company E) states that currently, he sees "Musiconvalley" as "*a forum for exchanging ideas*" and "*a service provider we use only sporadically*". In summary, after the initial funding period of the InnoRegio programme, inter-actor linkages became increasingly fragmented. Therefore, the general suitability of the programmes to the underlying network of actors is another aspect subject to critical analysis.

5.2. Suitability of the funding programmes for the underlying network of actors

As the complementary evaluation research concludes in the final report (BMBF 2005: 35), there seem to be three crucial factors governing the development of the former InnoRegios towards functioning network- and cluster-type collaboration: the local entrepreneurial and research potential of the network; the individual insights that collaboration is useful; and a powerful network management. Hence, one major prerequisite for local innovation-based collaboration is the potential for innovation and R&D collaboration of the network.

The interviews show that structural differences between the two different groups of enterprises – group 1 with the craft-oriented, small firms with little or no R&D expenditures, and group 2 with the larger industrial producers with higher R&D capabilities – imply differences in their R&D based collaborative potential. This finding has two broader implications. First, the two groups lack a common “historical” background in the local network, what is highlighted by one interview (D). The interlocutor states that many of the small artisan firms who are located in the regions for generations feel pressurized by the presence of the newly established and larger enterprises, given their traditional artisan manufacturing and their low levels of R&D. Therefore, their identification with the network management and the funding programmes is low. The missing common background of the different enterprises is major obstacle to establishing a common network identity and understanding of the activities of the network management. Consequently, this leads to low involvement of part of this group of MI firms in the “Musiconvalley” network activities. This finding is highlighted by some statements: *“The network initiative Musiconvalley is not accepted by a large number of local handicraftsman in the field”*. (interview with I) and *“Musiconvalley interferes a world that has not been interfered for 300 years.”* (interview with C). A second and even more important result is that the programme structures do not fit the funding requirements of particularly the smaller, artisan producers. Generally, these firms have little demand for product and process improvements and, moreover, rather call for micro-funding than for larger amounts (interview with D). In addition, the costs of funding – in terms of own funds and administrative effort – are prohibitive for many of the small and micro enterprises (interview with D, IfM, UAS). Their low openness towards external collaboration in the field of product and process improvements – which is a core concept of all cluster- and network-building within the programme framework as acquired by “Musiconvalley” – also hampers R&D-related collaboration (interviews with MV, D, I). As a consequence, part of the local network is not affected by the cluster policy approaches that are based on networking in the field of innovation.

As another result, it becomes obvious that local collaboration is ranked lower, as compared to (strategical) co-operative relationships with non-local actors. Hence, the exclusive orientation of the funding programmes towards local linkages limits the benefits for those firms that are oriented outwards (e.g. interview with I). As a general conclusion, the funding of R&D-based co-operation did not alter the underlying divided network structure, and there were no (sufficiently strong) stimuli by the cluster policy approaches and the “Musiconvalley” network management to bridge this divided network. Therefore, another aspect subject to critical analysis is the role of the cluster or network management in implementing the policy approaches and supporting a process of cluster formation and development.

5.3. The role of the network management

The complementary evaluation research finds that both a powerful network management and individual insights that collaboration is useful are important preconditions for the “success” of the InnoRegios in terms of developing into self-supporting clusters (BMBF 2005: 35). More specifically, a competent and pro-active network management is needed to successfully establish an innovation-based network (BMBF 2005: 24): the better the network management is assessed by the actors in the course of time, the greater is their identification with the network (ibid, 29). For the “Musiconvalley” InnoRegio and the MI industry, the role of the network management will be assessed using the consistency of the acquired programmes and the individual benefits and deficiencies on the part of network participants.

5.3.1 Consistency of the acquired funding programmes

The comparative analysis of the aims and structures of the different funding programmes, i.e. the initial InnoRegio programme (2000-2006) versus the succeeding funding lines from the NeMo programme (NEMATEC and MI FUTURE) and the Innovation Forum from the “Unternehmen Region” family (Figure 1), shows that the network initiative acquired funding from programmes with largely differing objectives and only a low degree of consistency.

As Figure 1 highlights, the geographical focus shifted from a local towards a non-local focus. Contrary to the InnoRegio programme, firms from outside the Vogtland area may be integrated in the NeMo programmes. While the InnoRegio funding of the “Musiconvalley” initiative involved 24 local enterprises (the majority of them stemming from the MI manufacturing) and two local institutions, only 9 respectively 5 MI enterprises took part in the following NeMo programmes NEMATEC and MI Future. The local R&D institutions – IfM and UAS – were not involved in those two follow-up programmes. The new business area with a focus on tourism will cover an equally low number of 5 to six local producers, in particular the larger industrial-scale manufacturers.

Another argument is that the programme aims are not consistent, and even partly conflicting (Figure 1). While the programme aim of InnoRegio was rather general (“to establish the Vogtland area as a world-wide renowned center of musical instruments making industry and its associated services”, www.unternehmen-region.de) and allowed for a broad range of different projects with a clear focus on innovation and R&D, the follow-up projects aim at specific developments that involve R&D-related activities: i) larger-scale and lower-cost production using innovative technologies and materials and readiness-to-series-production of innovative products (NEMATEC, www.musiconvalley.de); and ii) innovation leadership and novel, innovative production technologies while reducing production costs (MI FUTURE, www.zim-bmwi.de). Given the highly specialized and differentiated local production system, it is questionable whether a local industry that operates in a market niche should realistically focus on a strategy, for example, to increase the production volume or lower the production costs. Although these programme-specific aims are not directly at odds with the InnoRegio programme aim, it seems that larger-scale production at lower costs conflicts a strategy of both small-scale innovation-based networking and specialization at a high end niche market.

The different programmes of the “Unternehmen Region” programme family that were issued by the BMBF as successors of the InnoRegio programme are conceived as a hierarchy of development stages for networks, from alliances and networks in their start-up phases up to self-supporting, highly developed clusters (Burkhardt/Hillmann 2009). In particular, regional alliances in their start-up stages of development should benefit from the “Innovation Forums”, formal meetings of network participants and potential partners. Other programmes, e.g. the “Innovative Regional Growth Poles” (“Innovative Regionale Wachstumskerne”) represent self-supporting cluster to a much higher extent that have incorporated innovation-based collaboration as a core principle of the network (Burkhardt/Hillmann 2009). The “Musiconvalley” funding history clearly shows that the development of the MI network did not reach upper-level stages of cluster development but remained in a start-up stage.

5.3.2 Individual benefits of network participants and deficiencies of the network management

Given both the low degree of local innovation-based interaction within the MI industry and the inconsistencies in the programme structures and aims, the question whether firms individually benefit from the activities of the “Musiconvalley” initiative needs to be addressed in order to derive fields of successful activities from shortcomings from the perspective of network participants. In summary, there are two important findings. Most of the partaking firms clearly benefit from the activities of the network management (interviews with B, C, E, F, G, I, UAS, IfM). However, these benefits accrue from areas, such as the provision of local contacts and specific information. Notably in strategical fields, for example, marketing the MI industry, creating a common “identity” and “cluster brand”, these firms indicate deficiencies of the network management. Other MI enterprises that are not part of the “Musiconvalley” network (as members of the association or informally), in particular the small artisans with low R&D intensities and “outsiders” to the social networks, do not see their individual benefits (interviews with A, D, J).

Table 4 summarizes the benefits from the actors’ point of view. For many respondents, the fact that they were able to conduct R&D funded by “Musiconvalley” was the most important individual benefit (interviews with B, C, E, F, G, I, IfM), followed by job creation or preservation due to the R&D funding (interviews with B, C, E, I, IfM), human capital training and qualification (interview with B, C, F, I) and investments that could be made due to the funding (interviews with C, F, IfM). Some interviewees underline a broad know-how base held with the “Musiconvalley” team, in particular their knowledge of the different funding programmes and subsidies for enterprises (interviews with E, F, H). Funding-related consulting services and information provision as well as “Musiconvalley”’s role as an intermediary between the MI firms and authorities are given as further benefits (interviews with E, F, H). Some firms also name the pool of contacts held with the network management and, consequently, its high competence to connect firms with other actors (interviews with B, E, F, IfM). However, other interviewees critically add that the provision of local contacts is no significant benefits, given the small community (interview with G). Other respondents highlight “Musiconvalley”’s proactivity towards bringing together MI manufacturers and exchanging ideas (interviews with D, E, F, G, I, IfM). Further but minor aspects refer to the firms’ participation in fairs, exhibitions and symposia (interviews with B, E, F, I).

Table 4 about here

As compared to the actor-level benefits, the interviews reveal two important aspects that can be seen as deficiencies of the network management (interviews with C, D, I, BDAs). According to the InnoRegio programme designers, an important prerequisite for a functioning network is the participants' openness and willingness to externally collaborate within the network as well as a common network identity (BMBF 2005: 24, 29). A key challenge to the case of the Vogtland-based MI industry that has been addressed by Zanger/Kaminski (2008) is the need to build a cluster brand like "Made in the Musiconvalley" in order to enhance the external perception of the industry and the region and to market local actors as well as the region. However, many local MI manufacturers, in particular the micro- and family-run artisan businesses, are not open to externally market their instruments within the network and prefer self-marketing. Due to their missing identification with the "Musiconvalley" initiative and the management, the network management was not successful in establishing a common brand and a cluster-wide marketing strategy. A second deficit, as expressed by the respondents, pertains to the focus of the activities of the network management on local firms and contacts. In particular, MI enterprises with long-standing roots in the Vogtland area know their potential collaborative partners, and enterprises seeking network activities with firms from outside the region do not benefit from the "Musiconvalley" activities (e.g. enterprise I). Although the NeMo programmes consider the coexistence of local and non-local ties for R&D to a higher degree, as compared to InnoRegio, the area of operation of the network management is overall confined to the Vogtland region and the Saxon Bundesland.

6. Conclusion

The aim of the present study is to critically explore in how far cluster policy approaches were able to initiate and support knowledge- and innovation-based networks. This research question was addressed using the case of the East German MI industry that is locally concentrated in the Saxon Vogtland region. Three inter-related aspects were taken into account: the complexity of local collaborative linkages and the continuation of the funding effects with respect to collaboration; the general suitability and fit of the programme structures and aims for the MI network with its idiosyncratic structural and historical characteristics; and the role of the network management in establishing and sustaining a functioning cluster.

The analysis of the complexity of local collaboration highlights both the "weak tie" character of the network relationships and, in a dynamic interpretation, the missing continuation effects of the funding. Most interconnections between MI firms and institutions are based on the loose, overall market-based exchange relations. This is particularly true for innovation- and R&D-related co-operation. Barriers to collaboration clearly hamper deeper, more intense collaboration and add to the overall "weak ties". Different structural characteristics of the MI firms, local rivalry and a lack of openness to external collaboration on the part of particularly the artisan producers weaken the network-building and are obstacles to collaboration focused on innovation in particular. Moreover, the findings suggest that the MI industry with its strong orientation towards export markets ranks non-local, outward collaboration higher than local ties. As a result, we can state that cluster policy measures that exclusively promote local networking are not highly relevant for industries with strong outward orientation. The findings also show that those linkages that have been

established during the initial InnoRegio funding programme did not persist over time. As a result, there was only a low continuation of the funding effects towards establishing self-supporting cluster-type collaboration with a focus on innovation.

In addition, we find evidence that the cluster-based programmes did not affect large part of the local MI industry. While the R&D focus of the programme structures fits technology-oriented industries, it does not comply with the demands of an overall low-technology, craft-oriented sector with small-scale and labour-intensive manufacturing. This mismatch can be explained by a visible preference of the artisans for incremental, internal product and process improvements and their need for collaboration in different fields of their business, e.g. pooling of resources, marketing, etc. Moreover, the barriers to local collaboration and the outward orientation of part of the MI network are other factors that reduce the suitability of policy measures that exclusively support local interactions. Although follow-up programmes partly integrate external partners (what is highlighted by the visibly decreasing number of local participants), the importance of external collaboration for the MI industry, the low innovative capacities of the artisan producers and the transformation of the network management into a commercial organization reduce the fit between programme structures and actual collaborative potential.

As another finding, it becomes obvious that the funding programmes were not consistent over time, i. e., they lack a clear focus on the actual needs of the local MI industry. This, in turn, critically addresses the role of the network management. As a network facilitator, the “Musiconvalley” management succeeded in connecting firms with R&D funding during the InnoRegio period and gave a crucial impetus towards establishing innovation-based local collaboration for part of the MI industry at that time. Partaking MI actors clearly see individual benefits, such as information-building and knowhow-transfer from the management to the actors and between the actors. These benefits, however, accrued in particular during the initial InnoRegio period, and, again, the persistency of these effects is rather low. Other important fields – a common “cluster culture” and “network identity”, and strong social network relationships – are considered to represent deficiencies of the management. Similarly, the network management did neither succeed in creating a “brand” encompassing the network and representing the industry and the region. Generally, these intangible collective assets are important to establish functioning cluster collaboration.

In summary, the findings suggest that innovation-based collaboration through cluster policy approaches initiated local collaboration, but the continuation of the funding towards fostering existing ties was low. One hypothesis that may be derived as a result is that, in spite of the open programme structures of notably the InnoRegio approach, the region and the funding programme do not fit. This is explained by the low innovative capacities of a traditional, low-tech industry, the local “milieu” or “culture” implying strong barriers to collaboration and the strategical orientation of the network management towards R&D and innovation as the sole fields of activities. Therefore, we can conclude that policy measures solely based on fostering innovation through collaboration are not sufficient to stimulate the growth of less R&D intensive industries like the Vogtland-based MI network. In the present case, additional “soft” measures aiming, for example, first at strengthening the local network and overcoming the divide between the different groups of entrepreneurs via trust-building as well as building a cluster identity, and, as a second step, initiating

non-R&D collaboration (in fields like sales, purchasing, or as a pooling of human capital resources) or establishing a network-embracing marketing strategy to promote the region and the local industry as a unique brand, seem to be important complements to innovation-based activities. However, as a niche industry with low intensities in terms of jobs, investments, and turnover, the MI sectors lacks the critical mass to be in the focus of nation- or state-level regional or industrial policy measures. With its commercial structure, the network management could additionally offer privately financed central services for notably the small and micro businesses, such as project management, on an individual basis. This would strengthen informal network-building and, hence, correspond to the actual needs and structures of large part of the MI industry. As a general conclusion, cluster policy approaches as applied to less-technology intensive industries should not exclusively address R&D and innovation, but encompass other fields with visible collaborative potential. The specific implementation, however, crucially depends on the characteristics of the industry what confirms the argument brought forward by Hospers/Beugelsdijk (2002) that successful cluster policy needs to take into account the specific regional context.

These results of this study need to be considered in the light of some limitations with respect to the methodology and the research design. As cross-sectional research, the perspective of this paper is a static one. Therefore, it lacks a mapping of path-dependencies that are obviously relevant for the present case. An evolutionary view could explore when the path-dependencies were generated and if, or when, they reinforced or changed in the course of time. In addition, as qualitative research, the findings presented in this paper are not representative of the industry, but are only used to derive specific patterns and highlight communalities and differences across the sample cases. Finally, the results of the present paper refer to the single case of the MI industry and should be verified using other case regions, for example, other low-technology cluster initiatives from the InnoRegio or other programmes.

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Annex

Table 1: Instrument classes in the Vogtland-based MI industry (n=109)

<i>Instrument group</i>	<i>Number of firms</i>
Accordions, bandoneons, mouth harmonicas	9
Accessories	12
Bow making	13
Woodwind instruments	18
Brass instruments	13
String instruments	15
Plucked string instruments	15
Other firms (services etc.)	14

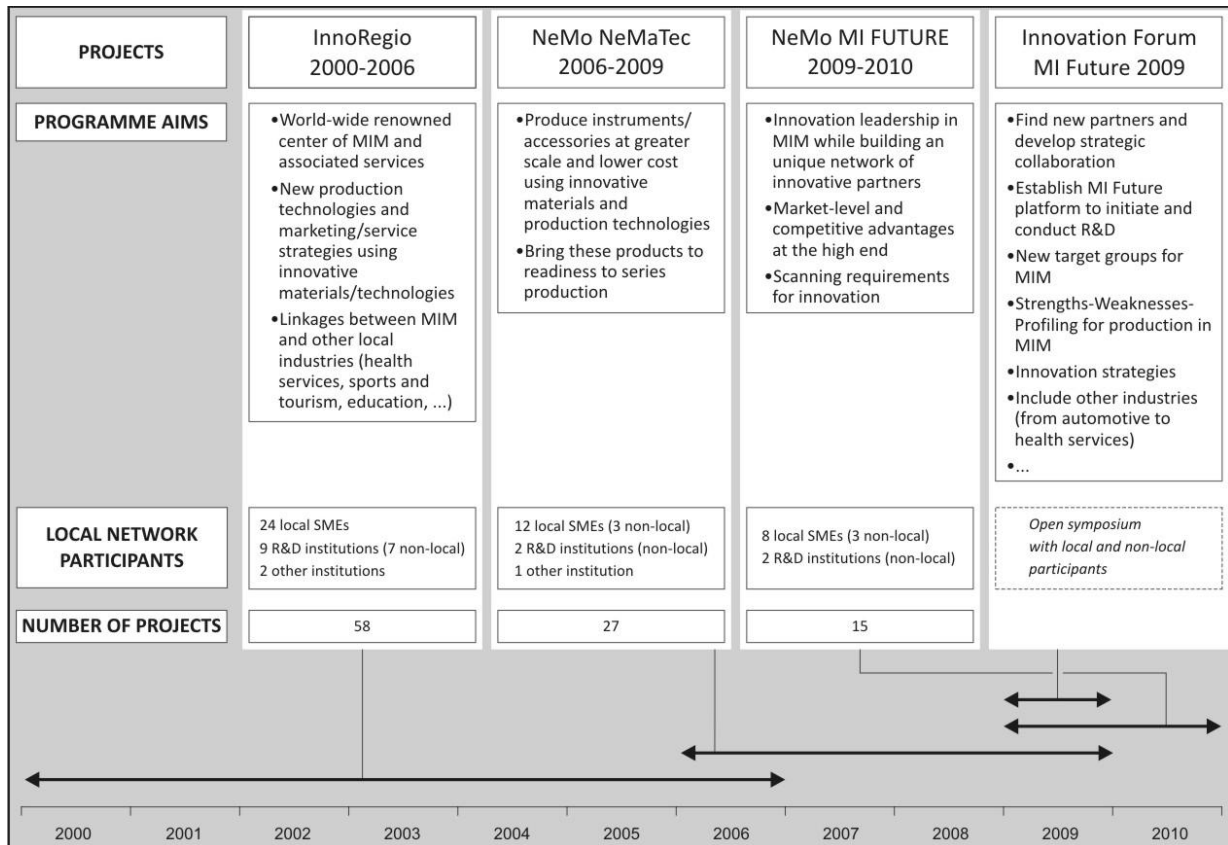
Source: Musiconvalley e.V.

Table 2: Firm size distribution with the Vogtland-based MI industry (n=102)

<i>Firm size (employees)</i>	<i>Percentage</i>
≤ 10	87
≤ 50	8
> 50	5

Source: Musiconvalley e.V.

Figure 1: Musiconvalley's funding programmes



Source: Own illustration

Table 3: Characteristics of network relationships and barriers to local collaboration

Characteristics	Barrier
Weak ties	Different product segments/instrument classes with low potential for technology-based collaboration across or within segments/classes
Loose or arm's length operational collaboration (production, R&D) within the industry and across the industry	Low openness towards external collaboration by artisans, low willingness to share idiosyncratic knowledge and practices
Low degree of strategical and collaborative orientation	Strong rivalry among manufacturers in the same product segment; weak strategical orientation of artisans
Local and non-local ties	Significance of non-local collaboration
Different enterprise types: small artisans versus larger-scale industrial producers	Structural mismatch of small artisans and larger units with respect to collaboration
Missing integration of newly established/relocated firms into local social networks	Social barriers due to local culture and mentality

Source: Own illustration

Table 4: Firm-level benefits from the cluster initiative

Single Benefit	Average rating
Implementation of R&D projects	3,78
Human capital training and qualification	1,67
Procurement of qualified labour	2,33
Job creation/preservation	2,33
Investments	2,56
Marketing of own products/services	2,44
Procurement of local contacts	2,00
Procurement of non-local contacts	2,78
Procurement of contacts world-wide	3,22
Improved exposure to World wide web, improved on-line marketing/sales	3,22
Participation in trade fairs, exhibitions, conferences, etc.	1,56
Higher degree of awareness on domestic markets	2,33
Higher degree of awareness abroad	2,67

Rating from 1 ("very unimportant") to 5 ("very important"); Source: Own survey

ⁱ At that time, Bohemian refugees settled in the Saxonian Vogtland fleeing from religious persecution during the counter-reformation from neighbouring Bohemia and founded the first guild for violin makers. In the course of the 18th and 19th century, other instruments manufacturers founded their businesses there, among them bowmakers for strings, chord makers, manufacturers for the brass and woodwind instruments, plucked string instruments, harmonicas and accordions.

ⁱⁱ This was organized by means of expropriations and mergers of smaller to medium sized producers towards larger units. Different "rounds" of nationalization of facilities led to the establishment of a large combine that encompassed several state-owned enterprises (Volkseigene Betriebe, VEB) in 1981 with piano, brass, string/plucked string and accordion production and some 20,000 employees (Cornelsen et al 1985: 166, 177 ff.). Examples are the VEB Klingenthaler Harmonikawerke (harmonicas, accordions, bandoneons), the VEB Musima (string, plucked and woodwind instruments) and the VEB Blechblasinstrumente (brass instruments).

ⁱⁱⁱ Four MI makers went bankrupt, with one recent insolvency of a larger producer.

^{iv} The university offers an academic degree course in musical instruments making.

^v In 2007, 67 firms with more than 20 employees existed in Germany with a total turnover of 422 million Euro and 4,306 employees. In contrast, the export ratio of this industry is more than 60 per cent (BMWl, bfai).

^{vi} Most interviews will be presented anonymously. The firms will be named in alphabetical order, from A to J.

^{vii} For example, enterprise D purchases cases and accessories from a metal engineering business in the Vogtland area.

^{viii} In single cases, strategical collaboration occurs between firms outside R&D activities, for example, between B and G as co-production and licensing.

^{ix} These experts, however, underline that it is not possible to separate the impact of the InnoRegio programme from other promotional funding, for example the "Aufbau Ost" programme for East German Bundeslaender, or programmes issued by the Bundesland Saxony.