Media Clusters Brussels

DELIVERABLE 3.1-3.4

Report on media organization's cluster logic and value generation – The drivers of media clusters

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Part of Work Package 3:
Media organization's cluster logic and value generation

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Media Clusters Brussels – MCB – is a collaborative and interdisciplinary research project of the Brussels Capital Region involving the three leading universities of Brussels, VUB, ULB and USL-B. The aim is to analyse the many facets of the media industry located in the Brussels Capital Region and explore the development of clusters.

The Projet de Plan Régional de Développement Durable / Ontwerp van Gewestelijk Plan voor Duurzame Ontwikkeling for Brussels (2013), approved by the Brussels Regional Government on 12th December 2013, identifies the cultural and creative industries as one of the four key sectors of the metropolitan economy, and more specifically proposes a media city at Reyers as the first strategic cluster (Pôle Reyers) to develop. However, despite the fact that the Brussels Region is committed to foster the development of the media sector, there is up until now hardly any empirical data available about the structure and dynamics of the media industry in Brussels. This project aims at creating socio-economic value for the media industry in the Brussels Region and beyond by providing decision-makers with the in-depth knowledge they need regarding the media industry in Brussels while accompanying the phases of implementation of the Pôle Reyers. The overarching research question is: How can the structure and dynamics of the media sector in the Brussels metropolis be enhanced to improve its social and economic roles?

MCB is divided in six **Work Packages**. Work Package 1 offers a general overview, definitions and common framework of the project. Work Packages 2 & 3 focus on Brussels media institutions by studying Brussels' media clusters from a macro and socio economical perspective. Work Packages 4 & 5 focus on the media workers within Brussels from a micro perspective and Work Package 6 on the communities the media workers form to create interactions and communities of learning from a meso perspective. These three points of interest, media institutions, media workers and media communities, enable MCB to grasp all dynamics of media clusters in Brussels.

More information on the Media Clusters Brussels project is available on the Internet (www.mediaclusters.brussels).

The project is financed by Innoviris under the Anticipate programme (Prospective Research – Anticipate – 66 – 2014/2018).

Scope of this report

This report is dedicated to **Work Package 3 – Media organization's cluster logic and value generation**. Work Package 3's goal is to analyse Brussels' media clusters' geographical organisation and the resulting cluster dynamics. This Deliverable is built on the findings of Work Package 2, which identified media clusters in Brussels. These clusters are in this Deliverable further analysed to find the features and dynamics that drive these clusters. This Deliverable is a working paper, that is foreseen to be submitted as article for publication. The analysis was supported Dr. Máté Miklós Fodor (ISE, Université Libre Bruxelles), who co-authored the Deliverable.

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Introduction

Media businesses have been observed to create clusters, agglomerating in certain locations. Successful examples of media clusters are Hollywood, New York, London, Berlin and Bollywood (Picard, 2009). Inspired by such successful examples, media clusters are today not only 'naturally' developed agglomerations but the target of national and regional development efforts (Karlsson & Picard, 2011). The Government of the Brussels Capital Region (BCR) for example, decided on supporting the agglomeration of media activities and to develop a media cluster in the neighbourhood of Reyers (Brussels Hoofdstedelijk Gewest, 2013). With increasing public interest, the need to tackle media cluster development in a knowledge-based manner has become urgent. While it is acknowledged that cluster formations stem from conditions that benefit businesses (Morosini, 2004), there is no consensus what these conditions are. Consequently, it is not clear how successful media clusters can be developed.

Therefore, the overarching research question is: What are the drivers of media clusters and how can governments support cluster development in their cities? In order to answer this question, we develop a new model that groups different drivers of media clusters and validates the model with the case of Brussels. This study is based on a mixed-methods approach using qualitative data from workshops and survey data. First, we introduce the literature and develop the new model. Second, the research design is introduced. Third, we present the findings. Finally, we summarize the findings and develop policy recommendations.

Part 1: An introduction to the economic drivers of media clusters

Approaching the literature

The idea of geographic industry agglomeration goes back to Smith's (1776) early observations of labour specialization and Marshall's (1920) explanations on why firms continue to localize in the same areas (Morosini, 2004). In 1990, Porter popularized the cluster concept among academics as well as policy makers through his book 'The Competitive Advantage of Nations' (1990). As there is limited scientific literature specifically focussing on media industry clusters (Komorowski, 2017b) our current understanding of them stems mostly from literature on other industry cluster research. We argue that this industry cluster

literature is not necessarily applicable to media clusters, because of certain particularities of the media industry: media clusters largely produce intangible products, like content and media services; the production is highly dependent on creative processes; and the media industry is uniquely influenced by the upsurge of content consumption via the Internet. This makes media clusters not only especially interesting to study but also means that media cluster theory needs distinctive attention in research.

We argue that media businesses in media clusters are localized in proximity within a particular geographic area while benefiting from their shared location. We are therefore interested in the different types of economic advantages that can stem from not only the proximity to other media businesses and actors, but also with the local characteristics (conditions) influencing the media clusters. We call this the 'economic drivers' of media clusters. The drivers of media cluster are seen as the conditions that make media businesses agglomerate and are therefore to be understood as the factors that make media businesses benefit from locating at a certain location and media clusters successful. Additionally, we acknowledge that media clusters form clearly distinguishable types of agglomerations, driven by different conditions (Komorowski, 2017). For instance, Hollywood is driven by other dynamics then Brussels' media clusters. Based on the elaborations above, we conducted a literature study investigating traditional and recent literature on industry and media clusters, while considering insights from other research fields with the goal to develop a new model that explains why media clusters function.

Economic drivers in literature

Looking at previous attempts to group, define and research the economic drivers of industry clusters, we see that scholars use three main concepts: 'localization economies', 'agglomeration economies' and 'urbanization economies' (Beaudry & Schiffauerova, 2009). However, there is no consensus of what conditions should be part of these concepts. For instance, we find that Marshall (1920) highlights three key conditions for industry clustering: a pool of specialized labour; the provision of non-traded input specific to an industry (e.g. common technologies); and the flow of information and ideas (Morosini, 2004). Most famously, Porter (1990) suggests four elements and groups them into the 'Diamond Model': firm strategy, structure and rivalry; factor conditions; demand conditions; and related and supporting industries. The Diamond Model is drawn from industrial economic theory and recognises the formation and growth of industry clusters as being driven by the transfer of goods and services between industry participants, and the nature of relationships between firms (Anderson, 1994). More recently, Morosini (2004) developed five major conditions for industrial clusters to be applied in empirical research: the social nature of an industrial cluster's knowledge interactions; the broad diversity of their social fabric; the key

importance of locally confined relationships and specialized economic linkages; the 'common glue' that binds industrial clusters together; and the competitive scope of industrial clusters in today's increasingly interconnected global milieu. Scott and Storper (2003) suggest that the dynamics of industrial clusters rest on the coexistence of five key conditions: economies of scale in capital intensive infrastructures; dynamic forward and backward linkages among firms, which promote information flows; resource availability and labour market conditions; dense local labour markets; and localised relational assets or social capital promoting learning and innovation. Another approach is suggested by Gordon and McCann (2000) who highlight three key drivers: classical external economies; trading relationships; and the importance of social networks.

Table 1. The drivers of industrial and media clusters identified in literature.

Source	Internal cluster drivers				External cluster drivers	
Marshall (1920)	Pool of specialized labour	Flow of information and ideas			Provision of non-traded input specific to an industry	
Porter (1990)	Firm strategy, structure and rivalry	Related and supporting industries			Factor conditions	Demand conditions
Morosini (2004)	Social nature of knowledge interaction	Diversity of social fabric	Specialized linkages and relationships	'Common glue'	Competitive scope in global milieu	
Scott & Storper (2003)	Economies of scale	Linkages promoting information flows	Dense labour markets	Social capital promoting innovation	Resource availability	
Gordon & McCann (2000)	Trading relationships	Social networks			External economies	
Bathelt & Gräf (2000)	Local interaction (buzz)					External interaction (pipelines)
Cook (2007)	Trust (social relationships)	Cooperation	Non-market relations			

If we look at media cluster literature, there have been fewer attempts to group the drivers of media clusters systematically. Bathelt and Gräf (2008) emphasize the importance of two dynamics in Munich's audio-visual (AV) cluster: the local interaction or 'buzz'; and interaction with external firms and markets through trans-local or global 'pipelines'. Cook and Pandit (2007) analysed UK-based media clusters and found that these clusters benefit mainly from three characteristics: trust (social relationships); cooperation; and non-market relations.

We find that there is considerable faction but also considerable overlap in literature (see Table 1).[1] We suggest that the described economic drivers identified can be grouped into conditions and dynamics that are internal for a cluster, meaning that they are created through internal conditions and dynamics between businesses and external to a cluster, including conditions that are part of the location of the cluster.

The new proposed model

Based on the information extracted from the literature study, we suggest a new model to describe why media clusters agglomerate integrating four economic drivers (see Figure 1): (1) urbanization economies, (2) agglomeration economies, (3) localization economies and (4) perception economies.[2] The drivers can be differentiated into internal and external drivers that influence each other and each has different weight in explaining certain media cluster types. This means that for example a media cluster located in one place might not be driven at all by one of the four economic drivers. Looking more closely at the literature, we delineate the new model as follows:

(1) Urbanization economies

The dynamics that occur in cities and urban areas have been labelled in literature as urbanization economies. In media cluster research, it is widely acknowledged that the media industry typically clusters in major urban areas. These clusters have also been described as creative urban milieus. Creativity is seen as an urban phenomenon which attracts media businesses. The creative city concept was popularized by Landry (2008). He investigated the concept of the creative city and highlighted that people are the key resource and creativity the key principle of urban dynamism. In industry cluster literature, urbanization economies are described by conditions that stem from the urban size or urban industrial diversity. Hoover (1937) defines urbanization economies as dynamics that are

[1] Beaudry and Schiffauerova (2009) give a survey of literature on this matter in more detail.

[2] The drivers are partly inspired by the media cluster typology by Komorowski (2017).

external to both the business and the industry, but internal to an urban geographical area.

We follow this definition by stressing that urbanization economies describe conditions that are only external to the media cluster and that are exclusively enabled by cities. We suggest to include the following conditions and factors to describe urbanization economies in more detail: (a) access to good transport infrastructure including public transport and proximity to an airport and international railways (which can be typically found in cities); (b) the closeness to potential clients, for example target audiences and readers; (c) access to typically urban infrastructures and facilities, like governmental agencies, associations and other supporting institutions, universities and research institutions (cf. Martin, 2000); (d) closeness to an urban milieu integrating cultural facilities and after-work offers (cafes, restaurants, nightlife), which attracts media workers (cf. Florida, 2002).

(2) Localization economies

While urbanization economies are widely discussed and tested in industry cluster research (Moomaw, 1988), the idea of localization economies as depicted in this model is less researched. The word localization economies is often used as an overarching term for agglomeration and urbanization economies. We suggest to define the word differently and see localization economies as such conditions that are external to the cluster (like urbanization economies) but are not internal specifically to an urban geographic area. According to Achtenhagen (2011), media clusters typically integrate local facilities and resources. These local facilities and resources can take various forms. Goldsmith and O'Regan (2003) describe for example the so-called studio complex and argue that AV clusters form around facilities that enable the production of AV content. Examples are numerous, such as the Babelsberg movie studio complex, the Pinewood Studios Group or the Film i Väst in Trollhätten. These media clusters are driven by external conditions, namely the access to the film studios, and can be found mostly outside of big cities. Another example of such external conditions for local economies are media clusters that are driven by so-called focal points, that we define as one or more major institutions. In media cluster literature this role is often taken by major private or public broadcasters. Barnes and Coe (2011) for example analysed EA Canada as the focal point of the video game industry in Vancouver. Other facilities and shared resources can be imagined. For example, Vang (2007) argues that the agglomeration of newspapers in the largest metropolitan areas is not due to the typically emphasised knowledge externalities which occur in cities, but instead he argues there is a need for physical proximity to central powers and major events.

To summarize, we define localization economies as drivers that are external to the cluster but are not necessarily integral to urban space. We suggest to define localization economies by the following conditions: (a) access to infrastructures

and events (e.g. local funding, political institutions, transmission infrastructure, meeting and conference rooms); (b) access to necessary facilities and resources (like studio or research facilities); (c) access to networking events and associations; and (d) connectedness to local governments.

(3) Agglomeration economies

Agglomeration economies have been extensively highlighted in literature as the decisive factor for the location of economic activities. Porter (1990) highlights that the critical dimension in agglomeration economies is the reach and scope of the economic activities carried out by its member firms. Morosini (2004) builds on this and states that these activities are based on the shape of the internal characteristics of the firm, such as its resources, processes and capabilities; and the social approaches to learning, articulating knowledge and creating a distinct sense of identity and cultural behaviour. These economic advantages, stemming from close geographic proximity, only benefit specific industries (Morosini, 2004). One of these industries is the media industry. Media clusters promote and improve production of media services and content by connecting producers in networks and projects (Krätke, 2003). Empirical research by Swann and Prevezer (1996) suggests that clusters in industries where multiple linkages through proximity can be created among the members (such as the computer industry) present significantly stronger growth patterns than clusters in industries with much lower linkages between member (such as the biotechnology industry). However, some scholars (e.g. Bruneel, Spithoven, & Maesen, 2007) go as far as questioning the relevance of proximity between firms in a cluster and the resulting benefits. Hoover (1937) defines agglomeration economies as external to the firm but internal to the industry.

We utilize this logic and define agglomeration economies as internal to the cluster, being the result of the close proximity between media businesses that share commonalities. We suggest to include the following factors and conditions to describe the driver: (a) closeness to similar businesses and (b) competitors (cf. Gordon & McCann, 2000); (c) accessibility to a large labour pool; (d) that is very mobile (cf. Morosini, 2004); and a flow of information and ideas within the cluster through common communication rituals (i.e. knowledge spillovers).

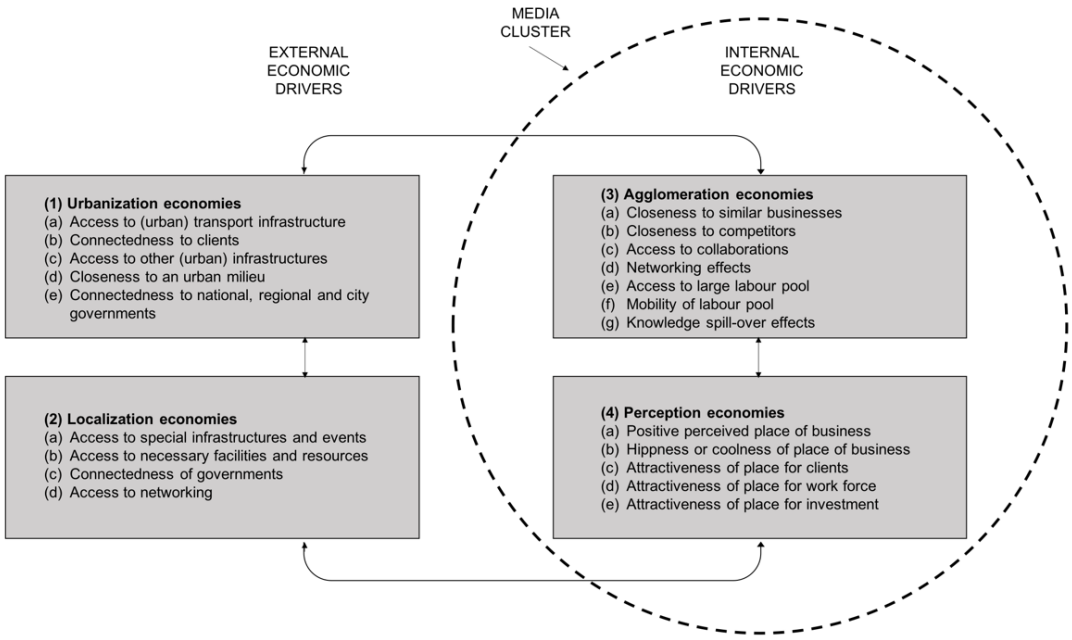
(4) Perception economies

Finally, we suggest to go beyond current industry cluster literature and integrate a driver that we call perception economies, including considerations about the perceived value of a place. In cluster literature, we can find examples where this idea has been mentioned but is not particularly well analysed. For example, Cook and Pandit (2007) looked at London's media cluster, finding that 'there is clearly a dynamic at work where the reputation of particular regional centres, above all London, attracts talent which makes the centre a more desirable place to do business.' Camagni (1995) states that creative milieus, like media clusters, are

often determined by a specific external 'image' and internal 'representation'. We built on this idea and define perception economies as those conditions that are internal to the cluster and depend on the perceived image or reputation of a media cluster by its members. This means: The better the media cluster as location for media businesses is perceived the more locate there which in turn enhances the positive perception even more. Looking at other research fields, like place theory, environmental planning, psychology or marketing, more insights can be found. Smit (2011) looked at location decisions of creative and cultural industry enterprises and found that the objective visual features of a neighbourhood or district and the creative entrepreneurs' subjective perception of the importance of these objective visual features are highly important. We argue that the visual attractiveness of the location of the media cluster in itself is not the driving factor, but the perceived value it brings to the media business located there. Russell and Pratt (1980) showed that the emotional experience in a place can be described through attributes in bipolar orthogonal dimensions: e.g. 'pleasant / unpleasant' and 'arousing / sleepy'. We argue that one of the most valuable attributes for media businesses is to be perceived as 'cool'. Duvivier, Polèse and Apparicio (2018) emphasize the role of cool neighbourhoods with an active social and cultural scene for technology-led jobs. Terranova (2000) discusses the relevance of a high 'coolness' factor for new media businesses to attract employees. We argue that media businesses need good reputation and have to be often associated with a certain lifestyle and 'coolness factor'. Especially due to media content and services being an experience good, the branding a media business possesses becomes even more important than in many other industries. For example, a new media business in Berlin is perceived as more creative, innovative and successful than a new media business in a small town.

In summary, the here newly developed perception economies are seen as internal for the cluster and we suggest this driver to be built on (a) positive attributes that are associated with the location of the media cluster; (b) including the coolness factor and hipness / trendiness of the place. This attracts (c) clients and consumers; (d) a skilled workforce; (e) and investment.

Figure 1. The proposed model of the four drivers of media clusters.



Part 2: Research design

Research questions and the case study

This study attempts to provide a new model to understand media cluster drivers and exploratively validates and tests it. The overarching research question has been defined as follows: What are the drivers of media clusters and how can governments support cluster development in their cities? Based on the aforementioned theory, rationale and new model developed, the following two subsequent research questions are proposed that will guide the analysis:

RQ1: What conditions drive media clusters?

RQ2: Are there differences in which economic drivers are relevant for different types of media clusters?

In order to answer these research questions, this article analyses three distinct media clusters, located in Brussels. This research aims to support local policy makers in their efforts to establish and strengthen media clusters in the city. In 2013, the Government of the Brussels Capital Region approved the Sustainable Regional Development Plan. In this plan, the Government of the BCR decided to foster agglomeration of media activities in Brussels (Brussels Hoofdstedelijk

Gewest, 2013). The main goal is the creation of the mediapark.brussels, an urban development project with the aim to develop a media cluster in the neighbourhood of Reyers. Substantial financial and planning efforts are currently invested to strengthen Brussels' media clusters. Komorowski (2017a) found that currently the media industry in Brussels forms three highly significant media clusters: an (1) AV media cluster around the public broadcasters at Reyers, a (2) print media cluster at the European Quarter and an (3) AV media cluster in Elsene / Ixelles. This study will test the new model developed by analysing these media clusters.

Data gathering approach

In this research, we apply a mixed-methods approach integrating qualitative and quantitative methodologies to validate and test the above developed model. We therefore follow a two-step process: First, the model developed based on the literature study was validated with qualitative research built on stakeholder workshops. The researchers organized six workshops over the course of 3 years from 2015-2018 with important stakeholders of Brussels' media industry, including representatives of the Government of the BCR and media businesses and initiatives in the city, building our panel of experts. We followed grounded theory building techniques. The output of the workshops was used to validate the new model that was built on the literature study. The validated model established the foundation for the quantitative research.

Second, a survey was conducted between May and June 2018 with media businesses located in the three identified media clusters in Brussels. An initial step was to identify the businesses. We followed the approach as suggested by Komorowski and Ranaivoson (2018) and used media industry-related activity codes to extract business information from Bel-first. Bel-first, developed and published by Bureau van Dijk Electronic (2018), includes the complete population of Belgian organizations. In total 312 media businesses with an address placed in the three media clusters have been extracted. The survey was sent to these media businesses. The survey was conducted with senior managers (e.g. director, general manager, managing director, owner, founder) or independents (e.g. producer, film maker, journalist). This listing of media businesses is by no means complete, due to restrictions and time lack of availability of data. Therefore, we approached the survey through a snowball principle and asked respondents to forward the survey to contacts they know in Brussels' media industry. Of the 130 collected questionnaires, 60 were included in the analysis. The remaining 70 were not located in the media clusters. The analysis thus accounts for around 20% of the in Bel-first identified population of media businesses. The representativeness of the sample is only acceptable with certain limitations. But we are confident that the data gathered represents the best information available within the objectives of this article.

Research variables and analysis

The survey was constructed against the developed model of the four drivers of media clusters. [3] We were aiming at collecting detailed, quantifiable and comparable data to assess to what extent the media businesses have access to, make use of, have at their disposal, or how relevant are certain conditions that compose the four main economic drivers (see Appendix 2 for a detailed account of the questions).[4] Our panel of experts assisted in the development and pre-testing of the survey ensuring content validity.

We used for the analysis an enriched descriptive statistical methodology, which consists of constructing a 'score' for each identified driver, as well as for each of its individual components (conditions). This analysis method was determined by the goal to easily convey policy recommendation from the results. We have constructed standardized scores for each question, answered by each respondent by constructing maximum values. The maximum values were constructed based on the form of the questions.[5] Consequently, each question has yielded a score

[3] Additionally, we took inspiration from the so-called seven parameter framework by Komorowski (2016). We focused on the following parameters: place, population, proximity, policy, and performance. Appendix 2 displays how the parameters have been used.

[4] The survey asked the respondents to give quantifiable estimates of certain conditions (e.g. How often?), to order conditions based on the relevance for their business, to answer if they use / not use, are reliant / not reliant on, agree / not agree to (on–off) certain conditions, or to mark the most relevant conditions from a list.

[5] For instance, in order to determine the maximum value of 'closeness to an urban milieu', which provided in the survey six main facilities (e.g. cultural facilities, after-work venues), the readily identifiable maximum could be constructed. If a respondent stated that they and their employees use all of these amenities, close to their workplace, on a regular basis, a score of 100 for this particular 'urban milieu' condition was attributed to the respondent. With each unutilized amenity, the score was decreased proportionally. In this case, the construction was clear-cut: a theoretical maximum value (i.e. using all 6 principal types of facilities) was clearly identifiable. In order to for example construct the maximum of the condition 'knowledge spillovers', the observed, constructed maximum was created. The survey asked the respondents how many innovative services and solutions their business had released in the year prior to the survey. The maximum value, in this case, was 50 innovative solutions, which was simply the observed maximum in our dataset. The score for all other respondents was constructed as score of this highest value of innovativeness. The construction of all maximum scores in the analysis followed similar reasoning.

for each respondent, which has to be understood as a score of the readily identifiable theoretical maximum or the observed, constructed maximum (of 100). Each condition has received the same weight in the determination of the final score. The scores need to be read the following way: On average X media businesses have access to, make use of, have at their disposal, or are reliant on an average of X conditions for the media cluster. We assume therefore that the higher the score is the more important is the condition for the media business, as it uses the conditions more, has access to more conditions, or is more reliant on the conditions. The lowest calculated score is 5, the highest is 57 and the average score is 30. Based on this, we regard conditions that score <20 as having a low importance for driving media clusters, 20-40 as having importance and >40 as highly important. Finally, a key part of the analysis was the preparation of a diagram illustrating the relative scores of the consequent driving economies per media cluster. In order to demonstrate the findings, the averaged-out scores across the drivers, and subsequently conditions as well as additional descriptive statistical analysis are reported here. First the scores across the drivers are discussed. In a second step, the results per media cluster are discussed and visualized.

Part 3: Findings

An introduction to the survey respondents

In the survey, the sample of media businesses consisted of 21% who indicated to be active in the print sector, 55% in the AV sector, 21% in the new media sector, and 15% in the advertising sector (multiple answers were possible). A similar distribution has been observed in the study of Komorowski (2017a) who analysed Brussels' media industry (19% print, 49% AV, 13% new media, 19% advertising). The median number of employees of the surveyed businesses is 2 and 36% of respondents were independents. This confirms the often-described structure of the media industry, which is coined by a large number of small companies and independents with only a few large media businesses (Leurdijk et al., 2012). Therefore, we see the surveyed businesses as representative of Brussels' media industry (see Table 2).

Table 2. The surveyed businesses in terms of media activity, and media cluster.

	(1) Reyers	(2) European Quarter	(3) Elsene / Ixelles	Total
Number of respondents	16	22	22	60
	Print	AV	New Media	Advertising
Distribution of respondents among media sectors	21%	55%	21%	15%

The conditions driving media clusters

The first research question of this article is: What conditions drive media clusters? The results of the analysis show, that all drivers scored above 25, meaning that all economic drivers (urbanization, localization, agglomeration and perception economies) are important for the functioning of the media clusters. There are important differences in terms of the importance of certain conditions (see Table 3). In the following discussion, we focus on the most important and least important conditions that drive media clusters:

(1) Urbanization economies

The survey suggests that urbanization economies play an important role for media clusters (score of 35). This is driven by the following highly important conditions: (d) 'closeness to an urban milieu' (score of 57), and (c) 'access to other urban infrastructures' (score of 40). Important for media clusters are: (b) 'connectedness to clients' (score of 24) and (a) 'access to transportation infrastructure' (score of 21). In the condition (c) 'access to other urban infrastructures', 90% of the surveyed businesses regard the access to highspeed Internet, including fibre optic Internet and other IT services, like the access to IP networks, software and servers as important for their business. Highly important is (d) 'closeness to an urban milieu' for clustered media businesses. On average 58% of the surveyed businesses regularly use urban facilities like cultural facilities, after-work offers (cafés, bars, restaurant nigh-life, etc.), parks / outdoor space, sport facilities, apartment and housing, and schools. Especially the after-work offers are regarded as very important as 82% of respondents indicated that they use them regularly. The survey results also suggest that the access to (a) 'transportation infrastructures' is important. The media businesses surveyed indicated that on average five times per week travel within Brussels and two times outside of Brussels is necessary. Clients and business contacts visit the offices of media businesses on average five times per week.

Table 3. The calculated scores of all surveyed and clustered media businesses in terms of conditions and consequent drivers (score out of a maximum of 100).

	External Economies	Internal Economies	
Urbanization economies	35		
Access to transportation infrastructure	21		
Connectedness to clients	24		
Access to other urban infrastructures	40		
Closeness to an urban milieu	57		
Localization economies		37	
Access to special infrastructures and events		40	
Access to necessary facilities and resources		39	
Access to networking		46	
Connectedness to local governments		23	
Agglomeration economies			28
Closeness to similar businesses			52
Closeness to competitors			29
Access to collaborations			37
Access to a large labour pool			18
Mobility of labour pool			5
Knowledge spillovers			29
Perception economies			26
Positive perceived place of business			52
Coolness of place of business			30
Attractiveness for clients			21
Attractiveness for the workforce			21
Attractiveness for investment			5

The respondents were asked to indicate what attributes the neighbourhood of their media business should have. They stated: 'well-connected', with 'access to public transport' and 'international transportation infrastructures', 'little traffic' and enough possibilities to 'park easily and for a low price' near the office.

(2) Localization economies

Localisation economies are regarded as the most important economic driver (score of 45) for media cluster functioning. Especially high scored the condition (c) 'access to networking' (score of 46). The survey asked the respondents to indicate if the media business is a member of an association. 46% of our respondents said, they are a member of an association. This includes for example being a member of an association for journalists (e.g. International Federation of Journalists), or being a member of screen.brussels, which funds and supports film making in the BCR (screen.brussels will be re-located to the future mediapark.brussels). The (a) 'access to special infrastructures and events' (score of 40) and (b) 'local necessary facilities and resources' (score of 39) in their media cluster are also important conditions in localization economies. The respondents mentioned for example that they need closeness to the international and EU Institutions located in the European Quarter, or research institutions (Université Libre Bruxelles, which is close Reyers), including the easier access to EU programmes like Creative Europe and H2020 as well as live studios (which are located in the VRT and RTBF buildings at Reyers). The closeness to the public broadcasters (which are located in Reyers) is ranked highly relevant for some respondents. In addition, the (d) 'connectedness to local governments' (score of 23) is somewhat important for the survey respondents. These governmental institutions include, among others, the Fédération Wallonie-Bruxelles, vlaams audiovisueel fonds, and other local public agencies (hub.brussels).

(3) Agglomeration economies

The conditions surveyed in the so-called agglomeration economies are regarded as important (score of 28). The condition that the media businesses are located (a) 'close to similar businesses' is highly important (score of 52). The data suggests that the (b) 'closeness to competitors' (score of 29) is less important. 67% of the surveyed businesses actually indicate that they are connected through collaborations and contracts with media businesses in their neighbourhood, showing how important (c) 'access to collaborations' (score of 37) is in media clusters. Around 33% say that they share clients, go to the same networking events and conferences and that they share visions and values with other media businesses in the same media cluster. (f) 'Knowledge spillovers', as our survey suggests, are important for media clusters (score of 29). Almost half (47%) of all media businesses indicated that they are involved in exchange of knowledge somehow (e.g. conferences, workshops, courses, classes). The media

businesses indicated that on average eight media products or services (with up to 50) are introduced to the market by the business out of which three are regarded as innovative. However, the often-highlighted importance of (d) 'access to a large' and (e) 'mobile labour pool' has low importance for the functioning of a media cluster as indicated by the results (score or 18 and 5 correspondingly).

(4) Perception economies

Finally, looking at the perception economies as driver for media clusters, the results of the survey suggest that the driver is important (score of 26) (but less important compared to the other drivers). Especially the importance of the (a) 'positive perception of the place' of business scores very high (score of 52). 70% of the respondents indicated that there are positive attributes representing the neighbourhood their media business is located in. For instance, only 3% of respondents indicated their neighbourhood is 'dangerous' and 73% of respondents regarded their neighbourhood as positively lively and 'urban'. Additionally, the survey inquired if the positive attributes actually support the media business to (c) 'attract new clients' (score of 21), (d) 'employees / freelancers' (score of 21), or (e) 'capital / investment' (score of 5). 21% of media businesses indicated that the positive attributes help them to attract clients and skilled employees and freelancers. Above average, and therefore especially important, is the attribute of being 'urban' for a neighbourhood, which 42% of media businesses indicated to be important to attract clients and 33% to attract employees / freelancers. Other positive attributes that support the media business are 'functional' and 'secure'. Only 5% indicate that positive attributes help to attract investment and capital. An outlier is the attribute (b) 'coolness / hipness of place of business' (score of 30) in order to attract employees. 20% indicate that this attribute supports the media business in this regard. We have additionally asked the respondents to add attributes that they regard as very important. Several media businesses additionally indicated the importance of a 'coolness' or 'hipness' of the place of media business. For instance, respondents mentioned that their neighbourhood should be attributed to 'the centre of action', or be located at the 'pole of media' or an 'artistic district'.

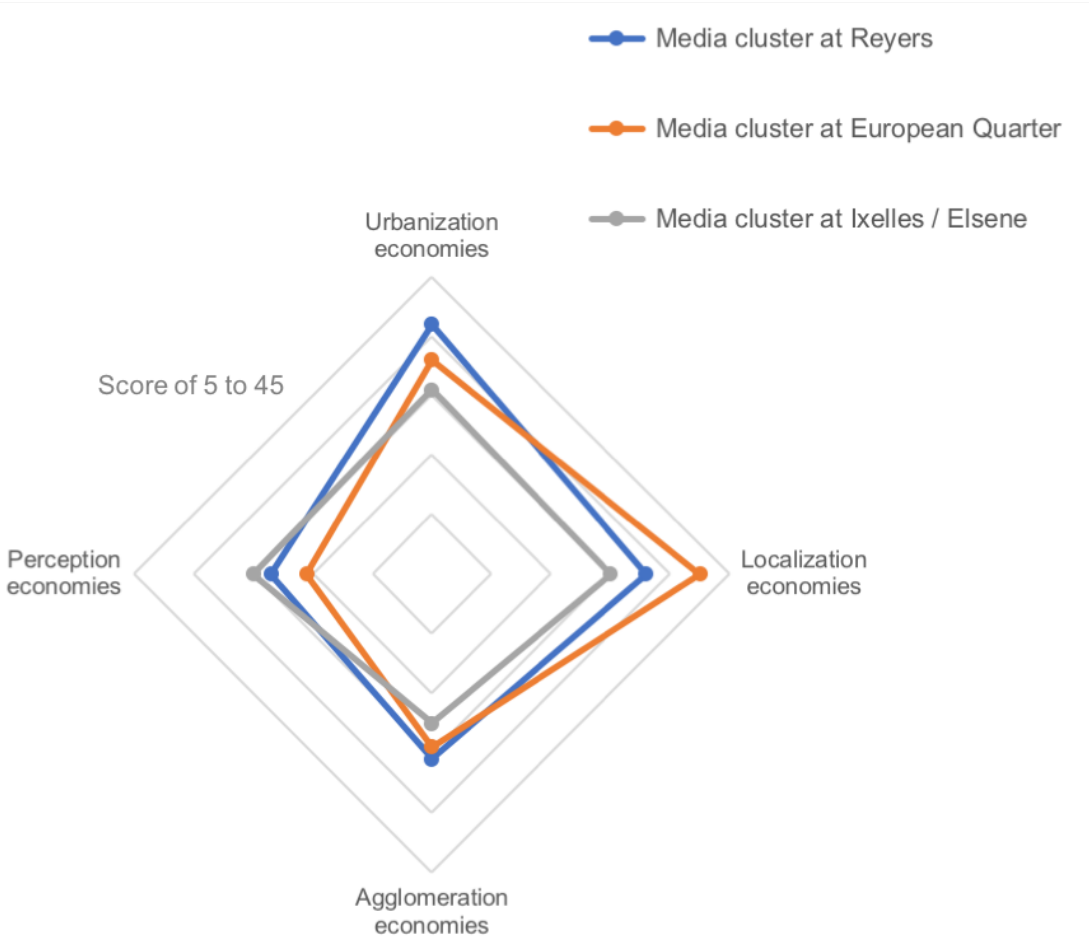
The differences of drivers among the different cluster types

The second research question of this article is: Are there differences in which economic drivers are relevant for different types of media clusters? The results of the survey suggest that there are differences in what drivers are relevant for what kind of media cluster (see Figure 3). In the following discussion, we focus on these differences that drive the different media clusters (see Appendix 3 for a complete overview of the calculated scores per media cluster):

(1) Media cluster at Reyers

Komorowski (2017a) identified that the AV media cluster at Reyers has most likely formed due to the presence of major broadcasters (VRT, RTBF, BETV, RTL) and the presence of post- and pre-production companies. The results of our study suggest that (1) urbanization economies are the most important driver of this type of media cluster (score of 42).

Figure 3. Visualization of the calculated scores of all surveyed media businesses in terms of economic drivers among the media clusters (score out of a maximum of 100).



Reyers is indeed highly connected to (a) 'transportation infrastructures', which is a condition of the urbanization economies: Reyers is directly connected to the motorway E40; there are a number of metro and tram stops (Meiser, Diamant) and train stations (Meiser) in direct proximity and it is possible to reach the international airport (Zaventem) within 10 minutes by car. Even though Reyers is seen as residential, as suggested also by our survey results, the neighbourhood also offers (c) 'access to urban infrastructures' including availability of housing and apartments, schools and kindergartens. For Reyers (2) localization economies (36 score) are also important. This is especially due to (c) 'access to networking',

meaning that many media businesses located there are part of local associations, and are highly reliant on (b) 'necessary facilities and resources'. Reyers with its transmission tower, hosts many studio facilities that belong to the public broadcasters. Reyers also scores quite high in terms of (3) agglomeration economies. Very important at the media cluster in Reyers is the (a) 'closeness to similar businesses' and (c) 'access to collaborations'. The idea of this kind of media cluster is that it is dependent on the central anchoring large broadcasters that give contracts to smaller AV media companies.

(2) Media cluster at European Quarter

The European Quarter media cluster, as identified by Komorowski (2017a), is described as being driven by the many international news outlets who have their offices in the European Quarter. Seen as crucial for the functioning of the media cluster at the European Quarter are (2) localization economies (score of 45). Media businesses seem to be highly reliant on the (a) 'access to special infrastructures and events'. These special infrastructures in the European Quarter are the European Institutions. Also, (c) 'access to networking' is important. The survey results also suggest that (1) urbanization economies (score of 36) are considered important. This is especially the case when considering expats and international journalists. We suggest that, while Belgians might choose to commute and live in their hometown, the same is not the case for the media workers in the cluster of the European Quarter. (3) Agglomeration economies are perceived as less important (score of 29) even though the importance of (a) 'closeness to similar businesses' is rated quite high.

(3) Media cluster at Ponds of Ixelles to Matonge in Elsene / Ixelles

Komorowski (2017a) found that this media cluster is characterised by a high number of AV production and advertising companies. The collected data suggests that (1) urbanization, (2) localization and (3) perception economies are similarly important for the functioning of the media cluster (score of 30-31). Ixelles / Elsene is the only cluster which stands out in terms perception economies and the (b) 'coolness of place of business' (score of 41). This is not surprising, knowing this neighbourhood hosts a large number of bars and restaurants. Many different cultural venues are located here, such as the Place Flagey, museums and theatres. The emphasis on perception seems in this case also connected to the importance of (1) urbanization economies (score of 31) in this cluster as being (d) 'close to an urban milieu' is scored as very important for businesses in this media cluster.

Conclusion and implications

The overarching research question of this article is: What are the drivers of media clusters and how can governments support cluster development in their cities?

This article developed a novel model consisting of four so-called economic drivers that are defined by a number of conditions that are either external or internal to the media cluster: urbanization economies (driving conditions that can only be found in larger cities that enable the creation of necessary infrastructures), localization economies (the availability of infrastructures and institutions that are not dependent on cities), agglomeration economies (conditions that emerge from media businesses being located in proximity to each other), and perception economies (the positive feedback loop that gives value to media activities by being associated to a certain location).

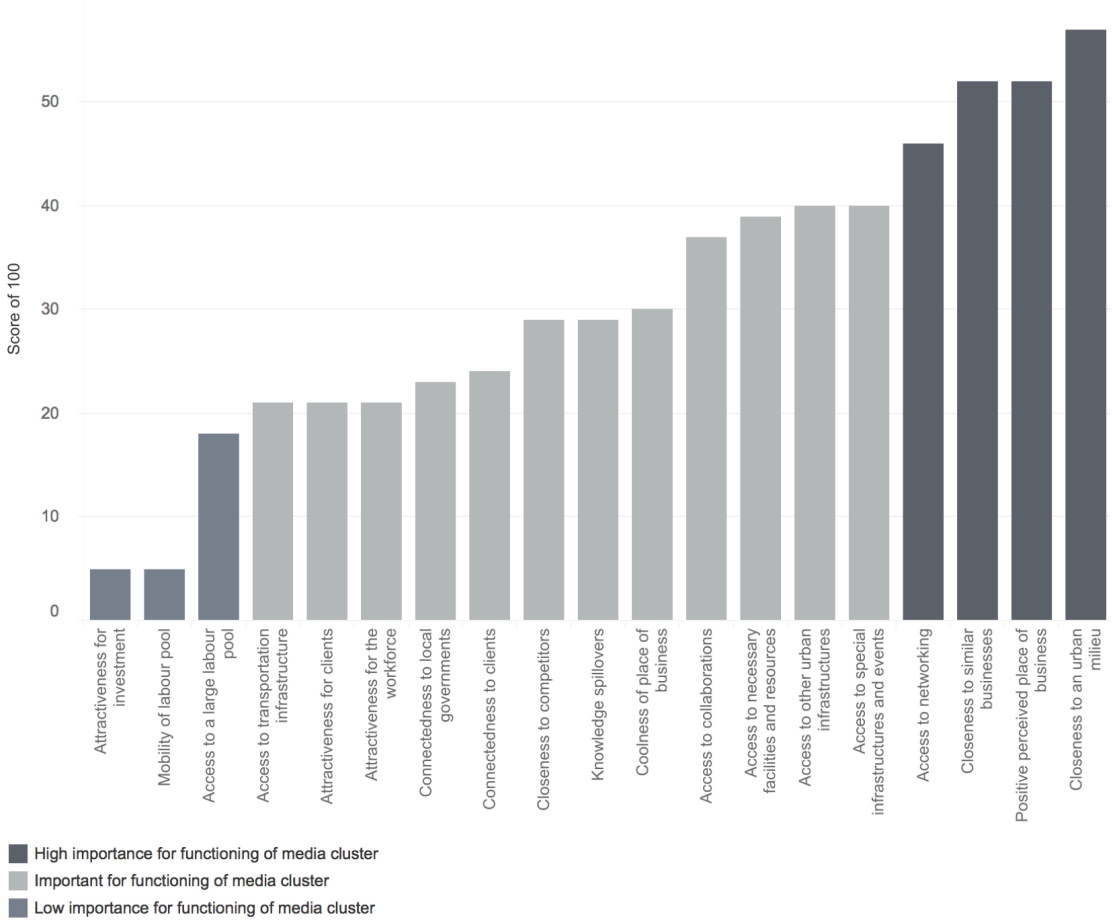
The results of the analysis show that certain drivers and consequent conditions are less or more important for media clusters and that different media cluster types are reliant on different drivers and conditions. Additionally, the chosen methodology enables us to pin-point the most important conditions for media cluster functioning. Therefore, the findings can be used to guide future policy making aiming to develop or strengthen media clusters in cities. Based on the findings we develop the following policy recommendations:

1. In order to support media cluster development, policy makers need to focus on developing the most important conditions.

Looking at all conditions that score >40 among all media clusters, we can identify the most important conditions for the functioning of media clusters: access to networking (being a member of an association), closeness to similar businesses, the positive perception of the place of business and closeness to an urban milieu (see Figure 4).

What does this mean for policy makers? When a media cluster is developed, it is important to include space for cafés, bars, restaurants, parks and cultural facilities in the urban planning process. It is especially important to create a positive image of the media cluster. This can include marketing efforts. Another important condition to account for by policy makers is to create more dedicated space to media businesses. Finally, it is essential for the policy makers to enable networking. This can be achieved through integrating associations and other networking organizations in the media cluster that is being developed. The plan of the Government of the BCR regarding the restructuring of the Reyers neighbourhood into the mediapark.brussels includes many of these considerations (mediapark.brussels, 2018). For instance, the project highlights that 'the new developments will incorporate housing, shops, services and leisure provision'. Screen.brussels and other research institutions, schools and associations already committed to relocate to the new office space in the mediapark.brussels. How the positive perception of the mediapark.brussels will be created is not detailed out in the plans of the Government so far.

Figure 4. The score of all conditions from lowest to highest importance for the functioning of media clusters.



2. Policy makers need to determine what type of media cluster they would like to develop in order to better steer the development.

In order to foster media cluster success, policy makers should focus on the most important aspects, as perceived by the businesses within a certain cluster type. This would be enhancing the 'coolness' in the case comparable to the one in Ixelles/Elsene, providing access to associations and networks of professionals for a case like it presents itself in Reyers or put emphasis on accessibility of resources when having a similar situation at hand as the cluster in the European Quarter. Therefore, the here-developed model of economic drivers is supposed to support policy makers to focus on specific conditions if necessary and avoid wasting resources and work on conditions that are not important in the future functioning of the media cluster. For example, the Government of the BCR aims to create 'an innovative ecosystem centred on the media and the creative industries' in Reyers. The Government needs to answer the questions: Would it be better to focus on AV activities and create a more specialized media cluster? Is it better to focus on the big broadcasters as central anchoring point for the

development of the media cluster? Is it beneficiary to include creative and cultural industry activities to allow as many diverse activities on the future site of the mediapark.brussels as possible? Only then, concrete focus points of development can be chosen.

3. Policy makers should build their efforts in media cluster development on already observable strengths of a targeted area for the functioning of a planned or emerging media cluster.

When the aim is to develop a media cluster in a specific location, it is important for policy makers to be aware of existing or emerging media clusters and how they function. We suggest that one of the problems with media cluster development is that instead of creating growth in the media industry, a mere shifting of media activities from one place to another occurs. This siphoning of other media clusters in the city hinders growth. It is therefore crucial for policy makers to not only be aware of the strengths of the media clusters in their city but also to find the gaps regarding conditions for media clusters in the city. For instance, Brussels is the most important location for media activities in Belgium. However, Brussels is not yet the place to be for international media production (Komorowski, 2017a).

This article emphasises that a one-size-fits-all policy regarding cluster development is best avoided, due to the high levels of heterogeneity in the conditions for media cluster success. As this is an explorative study, we encourage future research to analyse the here-presented model in more detail and apply it to different cases in order to validate it further and identify additional conditions that drive media clusters. We acknowledge that some conditions influencing media cluster success and development are not identified here. But we are confident that the four economic drivers are incorporating the most important conditions for media clusters to thrive and that the developed model helps future research and policy makers to better structure endeavours as well as to enable them to approach media cluster development and research in a more holistic way. The here-developed model provides a unique and novel way of thinking on how successful media clusters can be developed in the city.

Appendix 1: References

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Appendix 2: Overview of survey questions and structure (related to the parameters)

Parameter	Conditions (captured in here-shortened questions of questionnaire)	Name of condition in analysis	Economic driver	Internal or external to media cluster
Place	(Urban) transportation infrastructure (expressed through frequency of work-related travelling) *'How often (approximately per month) do you or your colleagues travel on average from your work place to other locations in Brussels / outside of Brussels?'*	Access to transportation infrastructure	Urbanization	External
	Connectedness to clients (expressed through frequency of visits of clients to work place) *'How often (approximately per month) do business contacts come to your work place?'*	Connectedness to clients	Urbanization	External
	Availability and access to other (urban) infrastructures (highspeed Internet, IT services, local governmental agencies) (expressed through relative importance for business per drag and drop) *'What technical and other supporting infrastructures are important for your business to operate?'*	Access to other (urban) infrastructures	Urbanization	External
	Availability and access to other infrastructures (big political institutions, research institutions, research facilities, studio facilities, meeting rooms) (expressed through relative importance for business per drag and drop) *'What technical and other supporting infrastructures are important for your business to operate?'*	Access to special infrastructures and events	Localization	External
	Closeness to (typically urban) facilities (cultural facilities, after-work offers, parks, sport facilities, living space, schools) (on–off) *'Are you using any of these facilities and offers in the neighbourhood of your work place regularly?'*	Closeness to an urban milieu	Urbanization	External
	Positive emotional experience of the place (expressed through bipolar orthogonal dimensions: e.g. 'pleasant/unpleasant' and 'arousing/sleepy') (on-off) *'How would you best describe the neighbourhood of your work place?'*	Positive perceived place of business	Perception	Internal

	Perceived coolness / being at a 'hip' place (expressed through 'cool/boring' and 'vibrant/quiet') (on-off) *'How would you best describe the neighbourhood of your work place?'*	Hipness or coolness of place of business	Perception	Internal
	Attractiveness of place for clients (on-off) *'Does the chose attribute (see above) help your business to attract clients?'*	Attractiveness of place for clients	Perception	Internal
	Attractiveness of place for work force (on-off) *'Does the chose attribute (see above) help your business to attract employees / freelancers?'*	Attractiveness of place for work force	Perception	Internal
	Attractiveness of place for investment (on-off) *'Does the chose attribute (see above) help your business to attract capital / investment?'*	Attractiveness of place for investment	Perception	Internal
Population	Population and awareness of related firms in the cluster (expressed through estimation of number) *'How many related media firms are located in the same neighbourhood as your work place?'*	Closeness to similar businesses	Agglomeration	Internal
	Population and awareness of competitors in the cluster (expressed through estimation of number) *'How many direct competing media firms are located in the same neighbourhood as your work place?'*	Closeness to competitors	Agglomeration	Internal
Proximity	Collaboration and connectedness and networking (expressed through relative relevance)	Access to collaborations	Agglomeration	Internal
	Networking events and conferences (expressed through relative relevance) *'How is your business connected to other media companies in your neighbourhood? Click the three most relevant options.'*	Networking effects	Agglomeration	Internal
	Accessibility of labour pool (expressed through length of open vacancies and number of applicants) *'How long is a vacancy of your business open? / How many applicants are there per vacancy on average?'*	Access to large labour pool	Agglomeration	Internal
	Mobility of labour pool (expressed through applicants coming from same neighbourhood) *'How many of these applicants have been working before in the same neighbourhood?'*	Mobility of labour pool	Agglomeration	Internal
Policy	Connectedness and dependence on local governments (on-off)	Connectedness to local	Localization	External

	'Does local government policy help your business?'	governments		
Performance	Involvement in exchange of know-how (e.g. workshops, conferences, courses / classes) (on-off) *'Is your business involved in the exchange of know-how (e.g. workshops, conferences, courses / classes)?'*	Knowledge spillover effects	Agglomeration	Internal
	Place-related cost savings (e.g. office rent) (on-off) *'Is the office space at your location affordable (to the best of your knowledge)?'*	Access to necessary facilities and resources	Localization	External
	Reliance on public subsidies, private investment (on-off) *'Are you reliant on public / private investments?'*	Access to necessary facilities and resources	Localization	External
	Member of an association (on-off) *'Is your business a member of an association?'*	Access to networking	Localization	External
	(Innovative) capabilities (expressed through number of innovative or new products and services per year) 'How many 'innovative' or 'new' products / services / solutions does your business bring to the market per year on average?'	Knowledge spillover effects	Agglomeration	Internal

Appendix 3: Overview of all calculated scores of the analysed media clusters (score out of a maximum of 100)

Drivers and conditions analysed in the survey	TOTAL	Media cluster at Reyers	Media cluster at European Quarter	Media cluster at Ixelles / Elsene
Urbanization economies	35	42	36	31
Access to transportation infrastructure	21	29	22	14
Connectedness to clients	24	46	22	11
Access to other urban infrastructures	40	39	40	41
Closeness to an urban milieu	57	55	58	59
Localization economies	37	36	45	30
Access to special infrastructures and events	40	20	76	18
Access to necessary facilities and resources	39	39	45	32
Access to networking	46	56	36	50
Connectedness to local governments	23	31	23	18
Agglomeration economies	28	31	29	25
Closeness to similar businesses	52	56	57	44
Closeness to competitors	29	37	32	20
Access to collaborations	37	40	37	34
Access to a large labour pool	18	20	13	20
Mobility of labour pool	5	6	4	6
Knowledge spillovers	29	28	31	28
Perception economies	26	27	21	30
Positive perceived place of business	52	55	45	58
Coolness of place of business	30	31	18	41
Attractiveness for clients	21	22	17	23
Attractiveness for the workforce	21	22	20	20
Attractiveness for investment	5	6	2	8