

Spill the Beans

A Case Study on how to Facilitate and Capture Knowledge Spillovers in the Media Sphere

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Abstract

As the economy progresses, the creative industries are emerging as ever more important for the economy of a nation, due to their resilience for employment in the face of automation. Among other governments, The Netherlands' government are spending resources on the creative industries for the benefit of employment. However, many companies in the creative industries remain small. Previous research has concluded that spillovers in the creative industries can contribute to the competitiveness of companies within the industries. However, how knowledge in these industries spills over and how SMEs can capture and facilitate these *knowledge spillovers* is a surprisingly understudied field. This thesis therefore seeks to fill that gap in academic research and does so by developing an own research framework based on prior research conducted on knowledge bases, networks and knowledge diffusion within the creative industries. The research takes a case study approach and focuses on a Dutch digital media company, Elastique, which is active in the Dutch creative industries while also being situated in the media cluster of Hilversum. The thesis seeks to answer the main research question, which asks, *"How can a digital technology SME within the media sphere of the Dutch creative industries utilize their respective networks in order to facilitate and capture knowledge that spills over?"* by answering the sub-questions which explore the dynamics of the Dutch creative industries, knowledge essential for the media sphere as well as networks and interaction which facilitate knowledge spillovers. The method is carried out mixing qualitative and quantitative data, although the emphasis is on qualitative analysis. The qualitative data consists of a document analysis and four expert interviews. Additionally, a survey interview, which provided both quantitative and qualitative data, was conducted with 18 respondents. The thesis finds that there is a potential for knowledge spillovers in the Dutch creative industries, but to what extent that knowledge is exploited for commercial benefits is still unclear. Furthermore, the results provide insights into what types of knowledge are essential in for digital technology companies. Such knowledge mainly revealed to be synthetic, meaning for example technical knowledge and knowledge that gained through experience.

KEYWORDS: *creative industries, media sphere, knowledge spillovers, networks, face-to-face interaction, digital interaction, the buzz*

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1. Introduction

In the future, many of the jobs we know today will be gone. There will be no more bankers taking care of our money, no marketers analysing the digital traffic on our company websites, and no cashiers sitting on a bench beeping our groceries through a scanner. Instead, most jobs will be automated and done by robots. The automation of jobs is expanding and will continue to do so in an increasingly rapid pace (Frey & Osborne, 2017). However, the *creative industries* (CIs) stand out as being fairly resilient towards automation. Several attempts have been made to define the CIs (cf. Bilton, 2010; Jeffcutt, 2004; Potts, Cunningham, Hartley, & Ormerod, 2008; Throsby, 2008; UNCTAD, 2010). In broad strokes, the CIs are a set of knowledge intensive, dynamic industries consisting of a range of creative sectors, characterized by flow of innovative and imaginative ideas.

According to recent studies, creativity is a factor that cannot be replaced by robots (Bakhshi, Frey, & Osborne, 2015; Frey & Osborne, 2017). Hence, the CIs have the potential to become one of the future's biggest employers (Bakhshi et al., 2015). This has not gone unnoticed by government officials, policymakers, or scholars. Academic research has been conducted on the CIs for over a decade now, and the CIs have become a key feature of government economic policy across all of Europe (Hennekam & Bennett, 2016). Even though the industries have caught the attention of both scholars and policymakers, most companies within the CIs remain small, employing only one or a handful of people (Stam, De Jong, & Marlet, 2008). This is interesting and contradicting because of the potential both the CIs and small to medium sized enterprises (SMEs) have. Already back in 1934, the renowned economist Joseph Schumpeter acknowledged the potential SMEs have for stimulating economic growth (Schumpeter, 1934), and as recently as in 2016 the European Commission stated that SMEs are the "backbone of the European economy" (Müller, Shaan, Julius, Galiardi, & Marzocchi, 2016). The potential of the CIs is based on the benefits they bring to the broader economy (Cunningham & Potts, 2015), their resilience towards automation and their potential to create jobs (Bakhshi et al., 2015). Hence, it is important to explore the processes that can help SMEs within the CIs live up to their potential. This thesis strives to do so by exploring how SMEs can benefit from networks and the knowledge intensive dynamics that characterise the CIs.

1.1 The dynamics of the creative industries

The powerful dynamics that characterize the CIs also constitute a key challenge for the industries. These dynamics refer to the knowledge intensive and networked character of the CIs. The CIs rely on knowledge-based economic activities (Howkins, 2001; UNCTAD, 2010). Access to up-to-date knowledge is essential, as differentiation of products and competitive advantage in the CIs are highly dependent on "the state of art" (Asheim, Coenen, & Vang, 2007; Power, 2010).

Knowledge in the CIs can be of either tangible or intangible nature. Tangible knowledge, for example technical and scientific knowledge, can be at least partly codified, which means that it can be systemized through symbols, such as numbers and graphs (Asheim et al., 2007). Intangible knowledge is tacit, which means that it is hard to transfer as it cannot be easily explained in written form. Therefore, for such knowledge to transfer, some type of *interaction* is essential (Asheim et al., 2007). Intangible knowledge is especially inherent for the CIs (Asheim et al., 2007; Asheim & Hansen, 2009; Preston, Kerr, & Cawley, 2009). This constitutes a challenge for the exploitation of knowledge within the CIs, as well as for the research of it. Jeffcutt & Pratt (2002) explain that *creativity* constitutes a big part of the intangible knowledge that flows between novel ideas, organisation and space in the CIs. Creativity can be seen as the "processes" that connect ideas to context (Jeffcutt & Pratt, 2002). This type of creative knowledge can be hard to obtain, as it cannot be codified. Such knowledge can *spill over* from one company or individual to another, across sectors and to the wider economy. Creative knowledge spillovers can be described as new ideas, innovations and processes that are developed by one actor, and then exploited by another (Frontier Economics, 2007; Jaffe, 1996; TFCC, 2015; Van Andel, Jacobs, & Schramme, 2014). Even though tangible knowledge is easier to transfer through training and in written form, it can also spill over (Jaffe, 1996). Despite the importance of intangible knowledge, the role of tangible knowledge should not be underestimated, as there is a need for a *heterogeneous mix of knowledge* for the success of SMEs in the CIs (Preston et al., 2009). Previous studies have concluded that spillovers in the CIs contribute positively to the competitiveness and economic growth of businesses (Banks, Calvey, Owen, & Russell, 2002; Jeffcutt & Pratt, 2002; Yi & Bin, 2011). Managing the dynamic flow of innovation, knowledge and creativity in the CIs is essential for future-proof business development: they are central parts of the competitive resources of companies within the CIs (Banks et al., 2002).

As regards to the second dynamic character of the CIs, difficult business models and a high-risk nature of the CIs necessitate the creation of networks between companies within the industries (Van Andel et al., 2014). With *networks* this thesis refers to communities where companies, knowledge institutions, governmental agencies and other stakeholders exchange knowledge. Networks can be based on social relationships, shared interest or geographical proximity, but what is common for each type is that they boost knowledge diffusion and knowledge spillovers (Achtenhagen & Picard, 2011; Asheim et al., 2007; Malmberg & Power, 2005). However, it is important to note that knowledge does not spill over automatically, as will be elaborated later in this thesis. Due to the intangible character of knowledge within the CIs, some type of interaction is essential for knowledge to spill over within networks (Achtenhagen & Picard, 2011; Comunian, 2012; Fuller-Love, 2009; Mattes, 2012).

1.2 The media sphere of the Dutch creative industries

This thesis focuses on the media sphere of the Dutch CIs. The decision to focus on the Dutch CIs is based on its rapid growth and the emphasis the Dutch government has laid on these specific industries. The Dutch government has set itself a goal: the Netherlands should be the most creative economy in Europe by 2020 (Ministry of Education, Culture and Science, 2014). The focus on the media sphere is relevant as it can be described as typical for the intangible, information-intensive growth sectors, which characterize the networked knowledge economy (Preston et al., 2009). Furthermore, previous studies have suggested, that the media sphere of the CIs may, in particular, have a strong potential for growth, innovation and job creation (Cawley & Preston, 2007; Kerr, 2007; Preston et al., 2009). This potential stems from the positive effects digital developments, such as social networking and peer-to-peer services, can have on this sector (Preston et al., 2009). Yet, in many areas this potential for growth has not been fulfilled (Lister, Dovey, Giddings, Grant, & Kelly, 2009; Preston, 2001; Preston & Kerr, 2001; Preston et al., 2009), which makes it interesting to study the dynamics and processes of this particular part of the CIs.

Digital developments and the increasingly networked economy have brought multiple new challenges and opportunities for both researchers concerned with the media sphere and companies within it (Preston et al., 2009). A reason for this is that digital disruption emphasises interconnected character of the CIs (Jeffcutt, 2004), which brings together sectors and industries formerly disconnected (Collis, Bane, & Bradley, 1997; Karlsson & Picard, 2011). Advances in digital technologies as well as the emergence of technology intensive companies creating new types of services further disrupt the markets of traditional creative firms, such as media companies within publishing and broadcasting (Karlsson & Picard, 2011; Mangematin, Sapsed, & Schüßler, 2014). Such traditional creative companies need to either reinvent themselves or closely cooperate with technology intensive firms in order to survive in a digital era, where new innovative companies disrupt the market (Mangematin et al., 2014).

This thesis uses a case study approach to study networks and knowledge spillovers in the media sphere. As proposed by Halinen & Törnroos (2005), an appropriate way to conduct such research is to select one company as the starting point for the study. Based on the arguments about digital developments disrupting both the structure of the CIs and the companies within it, using a technology intensive company as a starting point is considered important. This focus can give insights into the modern digital character of the media sphere that another focus would risk to overlook. Thus, the digital technology company *Elastique* was selected as the starting point of this study. The company was selected based on that it matches the focus of this study, as it is a technology intensive SMEs in the media sphere of the Dutch CIs employing 22 people. *Elastique* is located in Hilversum, one of the media centres of the Netherlands. The company designs and

develops interactive mobile applications and websites for its customers, which mostly consist of the Dutch public broadcasters. Thus, the company is positioned in the media sphere. Additionally, the company serves a number of commercial broadcasters and companies from other industries.

1.3 Research Question

The purpose of this thesis is to explore how SMEs can utilize their networks and knowledge spillovers in a way that supports them to develop in the dynamic CIs. Therefore, this study asks:

"How can a digital technology SME within the media sphere of the Dutch creative industries utilize their respective networks in order to facilitate and capture knowledge that spills over?"

To help answer this research question, four sub-questions have been formulated. As for the first sub-question, Halinen & Törnroos (2005) suggest that researchers should take a holistic approach when researching networks. Hence, the context of the networks should be introduced and explored throughout. Therefore, the first sub question asks,

"What kind of knowledge, network and digital dynamics characterise the Dutch creative industries?"

Previous research has concluded that there are different *knowledge bases* with varying importance depending on the industry, which will be elaborated later in this thesis. These knowledge bases hold different *types* of tangible and intangible knowledge (Asheim et al., 2007; Preston et al., 2009). Both tangible and intangible knowledge spillovers are important for the CIs, as a heterogeneous mix of knowledge is needed for success (Preston et al., 2009). Thus, in order to determine which types of knowledge can benefit a digital technology company, the second sub-question is asks,

"What types of knowledge and knowledge bases are essential for a digital technology company in the media sphere of the Dutch creative industries?"

As aforementioned, networks can be based on relations or geographical proximity. Furthermore, media companies often create project-based temporary networks (Karlsson & Picard, 2011). What is common for these networks, is that they boost knowledge diffusion and knowledge spillovers (Achtenhagen & Picard, 2011; Asheim et al., 2007; Malmberg & Power, 2005). Therefore, the third sub-question explores networks in the media sphere and knowledge spillovers within them, and asks,

"What types of networks facilitate knowledge spillovers in the media sphere of the Dutch creative industries?"

As mentioned in this introduction, intangible knowledge is difficult to codify, and necessitates some kind of interaction. Interactions can happen face-to-face or through digital means, but it can also transfer via "the buzz" (Asheim et al., 2007), which refers to a thick web of knowledge that circulate between co-located companies (Bathelt, 2008) This thesis explores these different aspects of interactions within networks and how knowledge is spilled over through them. Thus, the fourth sub-question relates to the social dimension of networks, and asks,

"Through what kind of interaction does different types of knowledge spill over in the media sphere of the Dutch creative industries?"

1.4 Relevance of the study

Managing the flow of creativity can positively affect companies' economic growth. According to Hernández-Acosta (2014), strategic knowledge about spillovers is essential for companies, as spillovers can produce sustainable long-term results (Hernández-Acosta, 2014). Spillovers in the CIs should not only be considered as a something that leaks out of a company, but also as an asset that can be incorporated into the strategy of creative firms (Hernández-Acosta, 2014). Hence, it is suggested that companies within the CIs incorporate spillover management into their strategy (Hernández-Acosta, 2014). In parallel, the growth of companies within the CIs creates jobs and has a positive effect on the wider economy (Bakhshi et al., 2015; Cunningham & Potts, 2015). Based on these notions, this thesis argues that knowledge about spillovers is beneficial for both industry practitioners and society as a whole. Furthermore, through taking a "company perspective", this thesis attempts to add value especially to managers of SMEs in the media sphere.

Strategic knowledge in the CIs must be situated in the analysis of particular organisational fields (Jeffcutt & Pratt, 2002). It cannot be imported from other sectors or industries. Furthermore, there is a need for research unravelling various aspects of spillovers in the CIs, as very little is known about the nature of them, and how they can be managed (TFCC, 2015). This study aims to do so by exploring how a digital technology company can facilitate and capture knowledge spillovers. While preliminary studies exist regarding the effects of creative spillovers on the wider economy, there is a gap in research that investigates how creative spillovers flow back into the CIs (TFCC, 2015; Van Andel et al., 2014). Hence, this thesis aims to add to the academic literature of knowledge spillovers in the CIs by exploring the nature of knowledge and spillovers in the media sphere.

1.5 Structure of this thesis

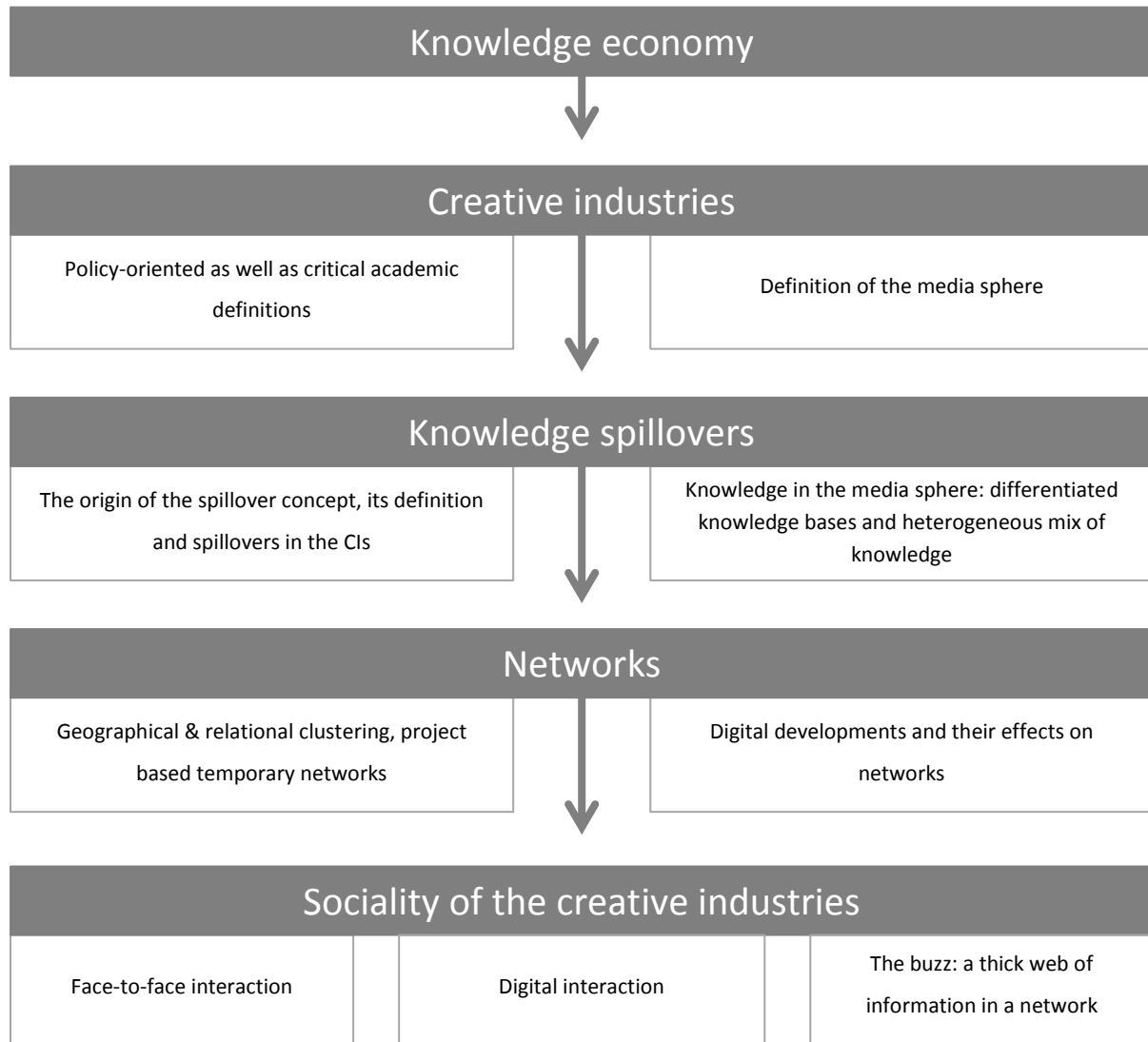
This thesis is organized in the following way. After this introductory chapter, the theoretical framework will be presented, which elaborates on the central concepts of the study: the CIs, the media sphere, knowledge spillovers, knowledge in the media sphere, networks and sociality of the CIs including aspects of interaction. The concepts are discussed relating to previous academic literature. The next chapter, methodology, presents the way the empirical part of this study was conducted. The chapter elaborates on the case study methodology and how data was collected, operationalized and analysed. Furthermore, the methodology chapter discusses the validity and limitations of this thesis. The results are divided into two parts. Part one, presented in chapter four, introduces the results related to the context of the study, and first sub-question. The second part of the results, chapter five, introduces the results relating to the other three sub-questions and discusses knowledge in the media sphere, networks that facilitate knowledge spillovers and interaction that facilitates knowledge spillovers. Finally, the sixth chapter concludes the thesis. In the conclusion, the research question is answered. Furthermore, managerial implications and avenues for future research are presented.

2. Theoretical framework

This first part of the thesis defines the central concepts of the study, as well as relates them to previous research in the field. Thus, a theoretical framework is established. Figure 1 describes the conceptual guideline of this thesis, and serves as an outline for this chapter.

Figure 1.

Conceptual framework



First, it is important to establish a robust understanding for the context of the thesis. Thus, the economic paradigm, the knowledge economy, where the CIs originate from is discussed in the first chapter of the theoretical framework. In the following chapter, the CIs as well as its media sphere are introduced. Thereafter, the thesis turns to reviewing previous literature on knowledge spillovers. The concept is defined in the context of this thesis. In the following chapter, different types of knowledge and knowledge bases in the media sphere are discussed. The theories identify three

differentiated knowledge bases in the CIs, and conclude that there is a need for a heterogeneous mix of knowledge. In the fifth chapter of the theoretical framework, networks and their significance for the CIs and spillovers are presented. Three different types of networks are discussed: networks based on geographical proximity, networks based on relational proximity and project-based networks. In the fourth section of the theoretical framework the sociality of the CIs and its networks, as well as aspects of interaction are discussed relying on previous research. The aspects of interaction are face-to-face interaction, digital interaction and the buzz. In the last section of this chapter, the theoretical framework is summarized.

2.1 From the knowledge economy to the creative economy

Before introducing a comprehensive description and giving examples on popular definitions of the CIs, it is necessary to discuss the CIs in a broader context in regard to the economic paradigm. This is important for establishing an understanding of the nature of the industries. The creative industries lie at the heart of the creative economy, a term which in part stems from the wider economic paradigm of "the knowledge economy".

The "knowledge economy" is a concept used to explain the transition from a traditional to a knowledge-based economic paradigm, where an increasing part of the labour market consists of knowledge-based jobs, such as scientists, management, lawyers, software engineers and *creatives* (Nakamura, 2000). In the western knowledge economy, a flexible specialisation strategy has been adopted (Nakamura, 2000). According to Jeffcutt & Pratt (2002), such strategy emphasizes a *network of small producers*, which can combine skills and expertise in order to produce short runs of new products at a short notice, while maintaining high quality. This flexible specialisation strategy has resulted in the creation of many new jobs within creative and innovative occupations (Nakamura, 2000).

In addition to the transition towards knowledge-based jobs and the creation of new occupations, a growing need for self-realization and self-development in economically well-developed countries has increased the demand for *creative products* (Ellmeier, 2003). According to Howkins (2001), a creative product is an economic good or service based on creativity, which has economic value. Howkins (2011) further stresses that "goods" in the creative economy are more complex than those from the traditional industries, as they do not need to have a physical mass. Instead, creative products can be either material, such as books and paintings, or immaterial, such as music or software (Howkins, 2001).

As the demand for these products was recognized, so was the economic potential of creativity (Cunningham, 2006). To describe this extension of the shift from a traditional to a knowledge based economic paradigm, the concept of the "creative economy" was introduced

(Howkins, 2001). The creative economy is based on knowledge-based economic activities, but there is no international consensus on any specific set of knowledge-based economic activities that form its basis (UNCTAD, 2010). Howkins (2011) explains that the creative economy consists of the supply and demand of creative products, and that most countries agree on the notion that "its industries embrace the creative imagination in its all forms" (p. 20). As mentioned, the CIs lie at the heart of the creative economy (UNCTAD, 2010). As well as regarding the creative economy, the definitions of the CIs seem to be ambiguous although both industry experts and scholars have made various attempts to define them. This has led to what Galloway and Dunlop (2007) call "terminological clutter". The next chapter will discuss this terminological clutter.

2.2 Creative Industries

It is largely debated where the borders for the creative industries lie, or whether there are any borders at all. Broadly speaking, most well acknowledged definitions argue that the creative industries involve subsectors of traditional, technology-intensive and service-oriented businesses (DCMS, 2001; Hesmondhalgh, 2012; Throsby, 2008; UNCTAD, 2010). However, this sub-sector approach has also received criticism (Bilton, 2010; Jeffcutt, 2004; Potts et al., 2008). In order to define and introduce the CIs for the context of this thesis, both policy-oriented definitions and definitions critical to the policy-oriented sector approaches are introduced.

2.2.1 The terminological clutter

To clarify the terminological clutter regarding the concept of the CIs, this thesis first introduces two policy-oriented definitions: the "concentric circles" model by David Throsby (2008) and a definition by the United Nations (UNCTAD, 2010). To compare these with a critical definition that emphasise the dynamics of the industries, a comprehensive ecosystem perspective by Jeffcutt (2004) is discussed.

The widely recognized "concentric circles model" by the cultural economist David Throsby (2008) is often referred to and used as a template in policy oriented definitions of the CIs (DCMS, 2001; UNCTAD, 2010). Throsby emphasizes primary creative ideas as the driving force of the CIs. These creative ideas are what distinguish the CIs from other industries (Throsby, 2008). The model distinguishes creative activities into four layers, where creative arts are the core and centre of new ideas and concepts (Throsby, 2008). In the artistic core lie activities such as literature, music, performing arts and visual arts (Throsby, 2008). Film, photography, museums, galleries and libraries are situated in the second layer, the other core cultural industries (Throsby, 2008). Throsby (2008) situates heritage services, publishing and print media, television and radio, sound recording and video and computer games in the third layer: the wider cultural industries. Lastly, advertising, architecture, design and fashion are marked as related industries in the fourth, outermost layer

(Throsby, 2008). According to the scholar, creativity flows from the artistic core out to the wider creative economy (Throsby, 2008).

From an international perspective, the United Nations (UN) provides a comprehensive, international definition of the CIs. The most recent report on the creative economy by the UN was put together by the United Nations Conference on Trade and Development (UNCTAD), and is built upon contributions by five relevant UN bodies (UNCTAD, 2010). According to the *Creative Economy Report 2010*, the CIs constitute a new dynamic sector in world trade and form a crossroad of the industrial, artisan and service sectors (UNCTAD, 2010). The UN's definition states that the CIs use creativity and intellectual capital as primary inputs for the creation, production and distribution of goods and services. The CIs are divided into four main groups consisting of heritage, arts, media and functional creations, based on their distinct characteristics (UNCTAD, 2010). These in turn are divided into nine subgroups according to specific activities and contents. The rationale behind this classification is for instance that it can facilitate the understanding of cross-sectoral interactions and provide consistency in the analysis of the industries (UNCTAD, 2010).

Policy-oriented approaches, such as the ones above, have been criticised as they simplify the CIs into "just another industry" (Potts & Cunningham, 2008, p. 236). In a critical response to the division of the CIs into sub-sectors, academics have tried to define the CIs through alternative approaches (cf. Banks et al., 2002; Galloway & Dunlop, 2007; Hesmondhalgh, 2012; Jeffcutt, 2004; Potts & Cunningham, 2008). According to the critics, the sector approach underrates the dynamic character of the CIs and their linkages to other industries. For example Bilton (2010), argues that the way the CIs are controlled by governments transforms them from being disruptive to manageable.

Jeffcutt (2004) challenges the dominant approach of dividing the CIs in sectors by stating that such approach "provides a rather arbitrary bounding of this creativity that diverts emphasis from key generic issues - such as the core dynamics of the creative process in knowledge economies" (p. 69). Jeffcutt does not argue for completely erasing the sectors, but to emphasize key dynamics of the industries, such as networks and the flow of ideas. Jeffcutt's approach assumes that the CIs are an ecosystem of creative space. According to Jeffcutt's approach, the CIs are trans-sectoral, trans-professional and trans-governmental (Jeffcutt, 2004). They are trans-sectoral in the meaning that the sub-sectors are not disconnected but shaped by their interconnectedness (Jeffcutt, 2004). The CIs are trans-professional as there is interconnection between domains of creative endeavour, such as visual art, design and media (Jeffcutt, 2004). Lastly, CIs being trans-governmental means that the policies of CIs bring together a complex network of stakeholders. These stakeholders are, for example, governmental departments, educational bodies and professionals (Jeffcutt, 2004).

Multi-layered knowledge networks and transactions that are both mobile and organised are a central part of the CIs (Jeffcutt, 2004).

In conclusion, the literature identifies several different aspects to define and describe them. This thesis acknowledges that the CIs cannot be completely separated from policy, but that it is also important to consider the trans-sectoral, trans-professional, trans-governmental dynamics of the industries (Jeffcutt, 2004). Before proceeding to examine knowledge spillovers in these dynamic industries in detail, the thesis will give an introduction to the specific part of the CIs this thesis is focusing on: the media sphere.

2.2.2 The media sphere

As this study is focused on the media sphere, their dynamics are discussed next. Relating to the various and conflicting definitions of the CIs discussed in the previous part, the term "media sphere" is used in this thesis. This is based on the notion that the thesis does not aim to interlock to any one of the definitions described above, but rather to explore what the media sphere in the Netherlands comprehends.

The media sphere consists of companies, individuals and stakeholders who are involved in the creation of mostly non-physical goods and services (Karlsson & Picard, 2011). Such goods and services are, for example, audio recordings, motion pictures, television programmes, movies, video games and websites (Karlsson & Picard, 2011). The media sphere is a part of the CIs that has been exceptionally affected by technological changes during the recent years (Karlsson & Picard, 2011). Advances in information and communication technologies (ICT) have stimulated the emergence of new types of services (Karlsson & Picard, 2011). These services include the creation, manipulation and distribution of digital content (Gillespie, Richardson, & Cornford, 2001). Such services are, for example, software, new media, videos, and new types of broadcasting (Karlsson & Picard, 2011).

An interesting development related to this are the claims that industries like telecommunications, computing and entertainment are converging, and one day there might only be one huge multimedia industry (Collis et al., 1997; Karlsson & Picard, 2011; "The great convergence gamble," 2000). According to Karlsson and Picard (2011), the emergence of the Internet and the capabilities of digital networks that can carry telecommunications and broadcasting services might have increased this convergence. Essentially, different network platforms can carry similar kinds of services. Karlsson and Picard (2011), exemplify that "telecommunications operators may offer audio-visual programming over their networks, broadcasters may provide data services over their networks, cable operators may provide a range of telecommunications etc." (p. 9). The scholars claim, that these services represent the "weightless" economy, in which products are non-excludable, infinitely replicable and electronically transportable through space, without cost

(Karlsson & Picard, 2011). Hence, it is questionable to which extent the media sphere belongs, or will belong, to the CIs in the future. On a critical note, Pratt (2000) argues that the "weightless economy" perspective is prone to technological determinism, an ideology that believes that if something is possible, it will happen.

This section has attempted to provide a brief summary of what the media sphere means, and how digital developments have affected it. So far this paper has focused on describing the context of this thesis. The following section will define knowledge spillovers, the origin of the concept and review literature relating to knowledge spillovers in the CIs.

2.3 Knowledge spillovers

Knowledge spillovers within the CIs lack robust conceptualization and empirical testing. Hence, there is a need for a comprehensive clarification of the concept. Simply put, knowledge spillovers are the direct or indirect transfer of knowledge from one party to another (Gilbert, McDougall, & Audretsch, 2008). However, it is important to note that the knowledge spillover process is not complete before the knowledge that was spilled over is used by the receiving party for commercial ends (Agarwal, Audretsch, & Sarkar, 2010). Thus, knowledge spillovers can be understood as the process of exchanging or observing new knowledge, absorbing it and finally exploiting it, as will be elaborated in this chapter. The spillover concept originates from the field of economics, specifically from theoretical and empirical research on the economics of technological change and innovation (Van Andel et al., 2014). The concept and its importance is strongly connected to the endogenous growth theory, also known as the new growth theory (Van Andel et al., 2014), which emphasizes the importance of positive externalities for economic growth and sustainable business development (Hernández-Acosta, 2014). Knowledge spillovers are a type of positive externalities (Jaffe, 1996), which occur when a third party benefits from an activity it did not choose to participate in (Frontier Economics, 2007).

Knowledge spillovers lack an agreed definition, as it is understood in a slightly different manner depending on the level of analysis, be it organisations, networks or industries (cf. Agarwal, Audretsch, & Sarkar, 2010; Frontier Economics, 2007; Jaffe, 1996; TFCC, 2015). Agarwal, Audretsch, & Sarkar (2010) define knowledge spillovers as "the external benefits from the creation of knowledge that accrue to parties other than the creator" (p. 271), while Jaffe (1996), a renowned academic in the field in economics, explains that "knowledge created by one agent can be used by another without compensation, or with compensation less than the value of the knowledge", which is the essence of knowledge spillovers. According to Jaffe (1996), examples of effective uses of knowledge spillovers are when a company successfully imitates a lucrative innovation of a

competitor, benefits from observing successes and failures of other firms, or combines knowledge from different actors to create a new innovation.

Jaffe's (1996) theory on knowledge spillovers is focused on R&D and scientific knowledge and is not suited as such for the CIs, which are characterised by a mix of both tangible and intangible knowledge (Asheim et al., 2007; Preston et al., 2009). Nevertheless, in the context of CIs, theoretical implications on knowledge spillovers are based on the "mainstream" literature of knowledge spillovers, especially the aforementioned theories by Jaffe (1996). However, the terminological clutter has made it challenging to conceptualise and define spillovers in the CIs. Most literature on spillovers does not differentiate between different types of spillovers, conceptualize the term sufficiently or provide evidence on what spillovers are (cf. Asheim, Coenen, & Vang, 2007; Jeffcutt, 2004; Mietzner & Kamprath, 2013; Vang, 2007; Yi & Bin, 2011). For example, the concept is often exchanged with terms such as "positive externalities", "knowledge externalities" and "added value". While knowledge externalities can be used as synonym for the knowledge spillover concept, positive externalities and added value have a different theoretical implication (Chernatony, Harris, & Riley, 2000; Jaffe, 1996). As explained above, knowledge spillovers are one type of a range of positive externalities (Jaffe, 1996). Added value, on the other hand, is a concept that lacks an agreed definition (Chernatony et al., 2000). Simply put, the term refers to value brought to an entity as a *result* of a process, such as knowledge spillovers, that remains post integration costs (cf. Leslie de Chernatony, Fiona Harris, & Francesca Dall'Olmo Riley, 2000 for a comprehensive description).

In an attempt to better map out and explain spillovers in the CIs, a report named *Creative Industry Spillovers – Understanding Their Impact On The Wider Economy* was prepared for the DCMS by Frontier economics in 2007. Adapting the spillover theory by Jaffe (1996), the report found evidence of knowledge spillovers in the creative industries. Furthermore, the report identified two other types of spillovers in the CIs: network and product spillovers (Frontier Economics, 2007). In the context of the CIs, the report by Frontier Economics (2007) defines knowledge spillovers as "new ideas which benefit other firms without rewarding the firm creating them" (Frontier Economics, 2007, p. 1). *Product spillovers* are similar to knowledge spillovers, but instead of being intangible processes of knowledge that spills over, product spillovers refer to new products, which are created by one company and then used to benefit other firms without rewarding the firm producing them (Frontier Economics, 2007). *Network spillovers* relate to benefits, which companies can obtain from grouping together geographically (Frontier Economics, 2007). The spillover benefits derived from networks are the ability to attract customers, suppliers or employees more readily (Frontier Economics, 2007). Furthermore, companies located in close proximity to each other can benefit from sharing ideas and knowledge (Frontier Economics, 2007). Hence, network spillovers are closely

related to knowledge spillovers, as knowledge spillovers also happen within networks (Frontier Economics, 2007; Gilbert et al., 2008)

In 2012, the European Commission added spillover effects of the CIs as a subject of their policy agenda. From that point on, spillovers in the CIs have gained an increasing amount of attention among scholars and industry specialists (cf. Chapain, Cooke, De Propriis, MacNeill, & Mateos-Garcia, 2010; Hernández-Acosta, 2014; Tafel-Viia et al., 2011; TFCC, 2015; Van Andel et al., 2014; Vickery, 2015). To further investigate creative spillovers and clarify the concept, Arts Council England (ACE), Arts Council of Ireland, European centre for creative economy (ecce), European Cultural Foundation, European Creative Business Network (ECBN) and Creative England started and funded a research project in collaboration with several universities about spillover effects in the European CIs in 2014, authored by Tom Fleming Creative Consultancy (TFCC, 2015). The report was published in 2015 and named *Cultural And Creative Spillovers In Europe: Report On A Preliminary Evidence Review* (TFCC, 2015).

Through examining a mix of literature reviews, case studies, surveys and quantitative analyses from 17 European countries, the project found evidence that confirmed the existence of the three types creative spillovers in the CIs, originally defined by the Frontier Economics report in 2007. Furthermore, the report examined definitions of spillovers in the CIs from a broad range of previous publications. Based on these research materials, the report developed a definition that strives to add clarity and coherence to the term spillovers. The report defines creative spillovers as "the process by which activity in the arts, culture and creative industries has a subsequent broader impact on places, society or the economy through the overflow of concepts, ideas, skills, knowledge and different types of capital" (TFCC, 2015, p. 15). Thus, knowledge spillovers in the CIs can be seen as a *process*, as mentioned in the beginning of this chapter. Furthermore, the report somewhat extends the definition of knowledge spillovers in the CIs by defining the concept as follows: "knowledge spillovers refer to the new ideas, innovations and processes developed within arts organisations and by artists and creative businesses which spill over into the wider economy and society without directly rewarding those who created them" (TFCC, 2015, p. 8).

It is important to distinguish between knowledge, product and network spillovers, but also to be aware of that they are interconnected. The authors of the report *Cultural And Creative Spillovers In Europe* explain that there is a constant interplay between the three types of spillovers, and that their complexity should not be underrated (TFCC, 2015). Network, industry and knowledge spillovers often co-exist, and one spillover can be the result of another (TFCC, 2015). A shortcoming of the report is that it does not elaborate these arguments, which makes it challenging to separate between the types of spillovers in practice. Even though knowledge spillovers are of particular

interest to this thesis, the other types of spillovers, as well as the interconnectedness of them, are also considered through the research process. Furthermore, spillovers flow in multiple directions, and thus those that occur *within* the CIs are just as important as the ones that flow out of it to the broader economy (TFCC, 2015). Hernández-Acosta (2014) tested this theory through two longitudinal case studies, and confirmed that in addition to having a positive effect on the broader economy, creative companies produce positive effects within their market and the specific industries they operate in (Hernández-Acosta, 2014). Therefore, Hernández-Acosta recommends that knowledge on spillovers should be incorporated in the strategic plan of creative firms (Hernández-Acosta, 2014). According to Hernández-Acosta, it is important to understand that spillovers should be considered key factors in promoting economic sustainability of the CIs. He argues that understanding and planning around them can have positive long-term results (Hernández-Acosta, 2014).

This chapter has introduced the concept of knowledge spillovers and discussed the definition of the concept. In this study, knowledge spillovers are defined as "new ideas, innovations and processes that are developed by one actor, spilled over to another within the same or another industry, and applied without compensation to the original creator". This definition follows the recent definition of knowledge spillovers in the CIs established by the *Cultural And Creative Spillovers In Europe* report (TFCC, 2015), but adds to the definition by also incorporating the *within industry benefits* of spillovers (Hernández-Acosta, 2014).

The knowledge spillover process involves a complex network of partners, collaborators and co-creators (TFCC, 2015). However, as will be argued in chapter five and six of this theoretical framework, spillovers do not happen *automatically* between these actors (Boschma & Iammarino, 2009; Frenken, Oort, & Verburg, 2007; Huber, 2012). Especially in the CIs, networks and interaction within them are essential for knowledge to spill over (Achtenhagen & Picard, 2011; Comunian, 2012; Huber, 2012; Malmberg & Power, 2005; Mattes, 2012). However, before elaborating on *how* knowledge diffuses within networks and through interaction in the CIs, it is important to define the *types of knowledge* that are relevant for the media sphere.

2.4 Knowledge in the media sphere

Now that an understanding for the concept of knowledge spillovers has been established, this thesis will discuss what kind of knowledge flows in the media sphere. Vang (2007) argues that it is important to unpack the industry-specific knowledge spillovers, as well as knowledge within companies in order to understand different aspects of the CIs. First, a model called differentiated knowledge bases by Asheim, Coenen, & Vang (2007), is presented. The scholars studied different types of knowledge in knowledge intensive industries, including the CIs. Thereafter, another study

by Preston et al. (2009) is presented, which studied knowledge specific to the media sphere. The latter study argues that a heterogeneous mix of knowledge is important for companies in the media sphere.

2.4.1 Differentiated knowledge bases

Asheim, Coenen, & Vang (2007) studied knowledge on an industry level, and argue that depending on the industry, different types of *knowledge bases* can have varying importance. The scholars propose that there are three knowledge bases, which can be understood as a collective term for a set of knowledge inputs. The proposed knowledge bases are analytical, synthetic and symbolic (Asheim et al., 2007). Thus, with knowledge bases this thesis refers to the collective terms and with knowledge types this thesis refers to the specific types of inputs within them. Each of these bases have different levels of significance depending on the industry (Asheim et al., 2007). According to Asheim, Coenen, & Vang (2007), "these contain different mixes of tacit and codified knowledge, codification possibilities and limits, qualifications and skills required by organizations and institutions involved, as well as specific innovation challenges and pressures" (p. 660).

The analytical knowledge base involves mostly scientific knowledge, and is present in activities such as research and development (Asheim et al., 2007). An analytical knowledge base is inherent to sectors such as pharmaceuticals and drug development: it is mostly relevant for scientists (Asheim et al., 2007; Mattes, 2012). Such knowledge is tangible: It can be codified and reduced to patents, numbers, graphs, maps, diagrams, texts, formulas, etc. (Asheim et al., 2007), and thus easily transmitted via digital means (Storper & Venables, 2004).

The synthetic knowledge base relates to knowledge that is created mainly through combinations of existing knowledge (Asheim et al., 2007). Such knowledge often occurs when there is a need to solve specific problems, such as to improve technical systems (Asheim & Hansen, 2009). Such problems and solutions arise in interactions with customers or suppliers (Asheim & Hansen, 2009). For example engineers and computer-associated professions largely depend on such knowledge. The synthetic knowledge base consists of is partly tangible, partly intangible knowledge. The synthetic knowledge base includes intangible aspects, as knowledge that is synthetic is often the result from experience gained through interacting and doing, and as it relies on concrete know-how (Asheim et al., 2007; Asheim & Hansen, 2009). However, the synthetic knowledge base also has a tangible side. Technical knowledge is a type of synthetic knowledge, which can at least partially be codified and reduced to, for example, graphs and code (Asheim et al., 2007).

The symbolic knowledge base includes only intangible knowledge: It deals with the creation of cultural meaning (Asheim et al., 2007). Such knowledge is creative and non-technological (Preston et al. 2009). Previous studies have shown, that the symbolic knowledge base is particularly present

and important for the CIs (Asheim et al., 2007; Asheim & Hansen, 2009). It is hard to articulate symbolic knowledge, as it is intangible, meaning, that such knowledge cannot be codified (Asheim et al., 2007).

Even though examples of different job functions that are clearly dominated by a specific knowledge base are given, there are very few occupations that rely solely on one of them. Asheim & Hansen (2009) argue that most job functions depend on at least two different knowledge bases. This point is elaborated on in the next section about a heterogeneous mix of knowledge.

The differentiated knowledge bases model has been empirically tested and assessed as an appropriate framework for knowledge intensive industries (cf. Asheim & Hansen, 2009; Manniche, 2012; Martin & Moodysson, 2011; Mattes, 2012; Preston et al., 2009). Manniche (2012) argues that the model seems applicable for exploring intra- or inter-organizational learning modes and networks involved in innovation processes. According to Asheim & Hansen (2009), this model is useful because it encompasses and acknowledges the various types of professions, occupations and competencies that are involved in the creation of new knowledge. However, as the framework is designed for an industry level, relying solely on this model is not sufficient for the context of this thesis, which focuses on specific types of knowledge in the media sphere.

2.4.2 Heterogeneous mix of knowledge

Preston et al. (2009) conducted a study that took a closer look at the media sphere and specific types of knowledge within its knowledge bases. The scholars noticed that previous literature contains a predominant focus on technical knowledge, while other forms of knowledge are not specified (Preston et al. 2009). In accordance with Asheim, Coenen, & Vang (2007), Preston et al. (2009) argue that technical, synthetic, knowledge is only one type of knowledge that goes into the innovation process. To investigate specific types of knowledge particularly in the media sphere, Preston et al. (2009) conducted several qualitative case studies during a ten-year period. The key findings of their research are that a heterogeneous mix of different types of knowledge inputs is essential for the success of companies operating in the media sphere (Preston et al. 2009). These findings are confirmed by Sotarauta, Ramstedt-Sen, Seppänen, & Kosonen, (2011), who argue that it is essential to intertwine the different sets of knowledge in efforts to create something new. Furthermore, Wolfe, Davis, & Lucas (2005) also agree on the notion that in the media sphere, innovation is often incremental, and therefore requires a special combination and application of tacit and codified knowledge.

A heterogeneous mix of knowledge includes both synthetic, especially technical, and symbolic, creative, knowledge inputs (Preston et al. 2009). An important finding of Preston et al. (2009) is that in addition to synthetic and symbolic inputs, business knowledge is essential for

success in the media sphere. These findings were previously also reported by Gill (2002), who argues that freelancers in new media must combine creative, business and technical knowledge. According to Preston et al. (2009), the symbolic knowledge that is important for the media sphere is related to digital media authoring, design, textual/editorial and production functions, as well as creative knowledge such as experience of working on content titles (Preston et al. 2009). In addition to well established market knowledge, the type of business knowledge that is essential for the media sphere is related entrepreneurship, policies and regulations specific to the media sphere and the CIs (Preston et al. 2009). However, based on many of the case studies that Preston et al. conducted, companies within the media sphere seem to have a lack of such resources. Thus, it can be argued that in addition to the synthetic and symbolic knowledge bases (Asheim et al., 2007), a business knowledge base is also important in the media sphere.

Based on the knowledge bases model and the description of knowledge inputs within them (Asheim et al., 2007), and the theory arguing for a heterogeneous mix of knowledge (Preston et al., 2009) a framework is constructed in order to analyse knowledge types in the media sphere. The framework is presented in Table 1.

Table 1.

Framework for analysing knowledge types in the media sphere.

Knowledge base	Theoretical definition	Types of knowledge
Synthetic	Knowledge that occurs when there is a need to solve specific problems, which arise from interactions with customers or suppliers and are related to experience, concrete know-how and technical problems (Asheim, Coenen, & Vang, 2007)	<ul style="list-style-type: none"> > Technical knowledge > General know-how > Intangible knowledge related to experience
Symbolic	Intangible knowledge related to creativity (Asheim, Coenen, & Vang, 2007)	<ul style="list-style-type: none"> > Creative knowledge
Business	Sector and industry specific business, entrepreneurial, policy, and/or regulatory knowledge, as well as knowledge on the market (Preston et al. 2009).	<ul style="list-style-type: none"> > Market knowledge > Industry specific knowledge > Sector specific knowledge

The studies discussed in this chapter indicate that synthetic, symbolic and business knowledge bases are important for the media sphere. The synthetic knowledge base is assessed as important in the

context, as it includes technical and intangible knowledge related to experience, which are expected to be important for a creative technology company. However, the analytical knowledge base is not assessed as relevant as it mostly concerns industries focused on science and research, and is of marginal importance in the CIs (Asheim et al., 2007; Preston et al., 2009). Symbolic knowledge is important to include, as it is inherent to the CIs (Asheim et al., 2007). Furthermore, as found by Preston et al. (2009), business knowledge is also relevant and is thus added to the framework.

This chapter discussed knowledge bases in the knowledge intensive industries and the media sphere in particular. Based on the discussion, an analytical framework was established. To obtain a balance between the different types of knowledge is a key challenge for companies (Preston et al. 2009). This thesis is concerned with how knowledge that spills over within networks can be exploited. In the following pages, the thesis turns to discussing previous research relating to networks and the knowledge diffusion within them.

2.5 Networks

Network research has emerged as a popular subject for scholars who attempt to identify the influence and impact of relationships at an individual and organisational level as well as for research studying how resources are facilitated and captured from a network environment (Jack, 2010). Previous research mostly agrees on the notion that networks have a strategic significance (cf. Banks et al., 2002; Ellmeier, 2003; Fuller-Love, 2009; Galaskiewicz & Zaheer, 1999; Granovetter, 1985; Gulati, 1998; Gulati, Nohria, & Zaheer, 2000). The argument is often based on the idea that in the long run, the benefits of co-operation outweigh those of competition (Banks et al., 2002; Ellmeier, 2003; Hall, 2000; Pratt, 1997; Scott, 2006).

In a broad sense, the concept of *networks* describes a variety of relationships, which can be either formal or informal (Gulati, 1998). Conway & Jones (2006) explain that within the concept of networks, there are four key components: actors, links, flows and mechanisms. Actors are the groups of individuals who make up the network, and might be different entities or persons depending on what kind of phenomenon is analysed (Conway & Jones, 2006). The links of a network connect the actors to each other, while the flows indicate the transaction of resources, such as information, knowledge, money or goods (Conway & Jones, 2006). The mechanisms of a network are the "rules" of interaction, which are set up by the actors of the network themselves (Conway & Jones, 2006). Mechanisms can be structured or non-structured as well as formal or informal (Johnsen & Johnsen, 1999). With *networks* this study refers to communities where companies, knowledge institutions, governmental agencies and other stakeholders exchange knowledge. These communities exist through "creative connections", which help sharing knowledge and building ties between community members (Colapinto & Porlezza, 2012).

In and beyond the CIs, the importance of networks has become increasingly prominent especially in the context of SMEs, as networks are seen as playing an important role in the survival of such companies (Fuller-Love, 2009). Companies within the CIs often have difficult business models, and the future economic, social or cultural value of their products is often uncertain (Scott, 2004). Hence, the CIs are said to have a "high-risk nature" (Scott, 2004). The high-risk nature of the sector and the large amount of SMEs necessitates intensive networking within the industries (Van Andel et al., 2014). By sharing skills, knowledge and labour pools, SMEs can manage risks in a better fashion. Consequently, many SMEs are very dependent on the network they operate in. Both formal and informal networks are often formed in the CIs (Scott, 2006; Pratt, 2000). Such networks have become an interest for both researchers and policy makers (Jeffcutt & Pratt, 2002).

There are three main factors that contribute to the formation of networks: social relationships, shared interest and geographical proximity (Fuller-Love, 2009). Traditionally, academic literature has focused on networks based on geographical proximity. However, recent literature has pointed out that networks can be based solely on social relationships and shared interests, and that digital developments may affect the formation of networks. Next, these differing approaches and their main arguments are explored, starting with research on the co-location of companies.

2.5.1 Geographical proximity

Many studies have concluded that geographical proximity is an important factor for the CIs, and that they tend to *cluster* in large metropolitan areas (cf. Storper & Venables, 2004; Florida, 2002; Pratt, 2008, 2004; Scott 2000, 2006; Graber, 2002, 2004; Rantisi, 2002; Kong, 2009). The cluster concept was popularized by the scholar Michael Porter, who defines clusters as "geographic concentrations of interconnected companies and institutions in a particular field" (Porter, 1998, p.78). Porter's cluster theory argues that the most successful companies are located close to each other, even though communication over long distances is possible and very easy nowadays. According to Porter (1998), clusters provide local knowledge, motivation and relationships. Several scholars have tried to redefine the concept since, which has led to the broadening of the concept. For example, Morosini (2004) defines clusters as a "socioeconomic entity characterized by a social community of people and a population of economic agents localized in close proximity in a specific geographic region" (p. 307).

According to Davis, Creutzberg & Arthurs (2009), media industries are often highly clustered in major urban areas. Scott (2000) argues, that clustering within the CIs enhances the access to other resources such as labour markets, supply-chain relations and funding potentials. Furthermore, spatial proximity is important for innovation capacity (Scott, 2006). This argument is based on the idea that innovation capacities of SMEs are stimulated by access to knowledge that relates to

industry trends and expertise (Comunian, 2012; McCann, 2008). Furthermore, Karlsson & Picard (2011) found that media clusters promote and improve the production capacity of media companies through partnerships, projects and networks. Additionally, clustering of media companies stimulates media innovation, and facilitates the fast spread of new ideas creativity between companies (Karlsson & Picard, 2011).

Furthermore, Achtenhagen & Picard (2011) discuss the advantages and disadvantages of the clustering of media companies. As a disadvantage, small companies can feel threatened and insecure about sharing knowledge and networking with large, incumbent firms (Achtenhagen & Picard, 2011). Another disadvantage of too tight clustering is noted by Nootboom, Van Haverbeke, Duysters, Gilsing, & van den Oord (2007), who argue that companies that rely too much upon local knowledge restricts the learning ability of the actors in the network. Thus, a cluster might be locked into the knowledge it already possesses, and lose its ability to adapt to new developments (Grabher, 1993). The advantages, however, greatly exceed this disadvantage. Achtenhagen & Picard (2011) argue that informal flows of knowledge gained through interactions with other companies are a clear advantage. Malmberg & Maskell (2002) agree by stating, that co-location carries the potential for intensified interaction between various actors. This is important to the media sphere because of the intangible nature of their goods and services, as knowledge and skills related to intangible products is harder to grasp than knowledge and skills related tangible goods (Achtenhagen & Picard, 2011).

This section reviewed literature arguing for the importance of clustering for knowledge exchange and spillovers. Based on the literature it can be concluded, that co-location is important because it allows knowledge diffusion and spillovers. However, as pointed out by Achtenhagen & Picard, (2011) and Malmberg & Maskell (2002), a reason for the knowledge diffusion is the intensified interaction between clustered companies. Huber (2012) argues, that academics and policy makers should be careful with the assumption that firms that co-locate can automatically benefit from knowledge spillovers. In Huber's (2012) study within the technology industry, he found that it is unclear to what extent the benefits of knowledge spillovers actually occur (Huber, 2012). The scholar found, in line with Achtenhagen & Picard, (2011) and Malmberg & Maskell (2002), that the benefits were not realized when there was no interaction between the co-located companies (Huber, 2012). This leads to the importance of *relational proximity*, which is discussed next.

2.5.2 Relational proximity

Co-locating with similar companies does not automatically facilitate knowledge transfer or knowledge spillovers (Asheim et al., 2007; Bathelt & Glückler, 2011; Chapain & Comunian, 2010; Giuliani, 2007; Healy & Morgan, 2012). Recent literature argues that there is an intangible aspect to

networks, which *must* exist to connect individuals and organizations together (Lee, 2015). Thus, clustering benefits cannot be derived solely from co-locating with other companies. Scholars studying clusters call this line of argument the *relational turn* (Comunian, 2012). The concept relates to the idea that a relational proximity has to exist between companies that co-locate for optimal clustering benefits (Comunian, 2012). Relational proximity refers to, for example, shared values, shared visions or social relationships (Asheim et al., 2007; Comunian, 2012).

According to a number of scholars arguing for the importance of relational proximity, cluster benefits can possibly be derived from social relationships and collaborative networks that are not dependent on being located close to each other (Asheim et al., 2007; Comunian, 2012; Lee, 2015; McCann, 2008; Scott, 2006). For example, Asheim et al. (2007) argue that relational proximity existing between physically distant actors is sufficient for knowledge to transfer and spill over. As for the media sphere, networks between physically distant actors are formed, even though clusters are important and commonly found. In addition to the important links between local firms, links often extend beyond specific geographical areas (Karlsson & Picard, 2011). Nachum & Keeble (2003) found that because of the increasing competition, globalization of media services and the need to take advantage of economies of scale, media companies increasingly extend their networks from local to global. The scholars studied a cluster of media firms in central London. According to their empirical research, there is a need for firms to establish a balance between local and global links to other companies - establishing networks bound by physical proximity as well as networks with companies residing in a wider geographical area (Nachum & Keeble, 2003). The reason for such a need is that the differing network types - local and global - offer varying types of knowledge inputs (Nachum & Keeble, 2003). Geographically bounded networks can offer knowledge developed locally, while networks that are not restricted to an area can facilitate a company with knowledge that extends beyond the boundaries of a local environment (Nachum & Keeble, 2003)

In addition to networks based on geographical and relational proximity, there is one last type of network, which can be based on either co-location or relations. These are project-based networks, which are important to mention because they are archetypical to the media sphere, especially the emerging digital media industry (Grabher, 2002; Pratt, 2002). Companies within the media sphere are often organized according to intra- and inter-firm projects, which can be described as "project-based temporary production networks" (Karlsson & Picard, 2011, p. 14). Such networks have a limited time span, and they are popular within the media sphere because they give companies flexibility in the organization and coordination of production (Karlsson & Picard, 2011).

In summary, geographical proximity is beneficial, but for utilizing the benefits of such a network, companies within it also need to share the same social values and visions as well as build

social relationships with each other. Before proceeding to discuss this social character of the CIs and its importance for knowledge spillovers in detail, a factor that has been up to debate regarding the importance of relational and geographical networks needs to be discussed. Thus, the following section briefly reviews how digital developments have affected networks within the CIs.

2.5.3 Digital developments

The transition from analogue to digital production has implications both in terms of organisation and space (Mangematin et al., 2014). Digital media, as well as information technologies, have enabled work and communication to occur at a distance (Neff, 2005). Pratt (2013) argues that the discussion of networks in the digital era alerts to a more complex picture of the concepts. To understand "space" in the CIs in a modern digitised age, networks have to be comprehended as embedded and embodied processes (Pratt, 2013). Mangematin, Sapsed & Schüler (2014) state that the role of digital transformation in the CIs is so important that it is necessary to acknowledge it and make it a priority in research regarding these industries.

Some critical scholars have argued that space is irrelevant as digitisation is erasing the importance of geographical location (Cairncross, 2001; Coyle, 1997). However, most of these arguments have been heavily criticised by scholars that claim that these critics have been too quick in their declaration of the "death of the distance" (Delgado, Porter, & Stern, 2010; Neff, 2005; Pratt, 2013; Scott, 2000). For example, Neff (2005) argues that place has become *more* important, instead of less important, due to digital developments. In her research she explored the role of place in the CIs through data gathered about networks and social events. Neff (2005) found that networking events, such as seminars and other industry related gatherings mediate access to important knowledge within the industries. These networking events took place within narrow geographic clusters (Neff, 2005). Companies relying on digital means of communication would miss out on such important knowledge that is only transferred through gathering at the same physical place.

2.6 The sociality of the creative industries

Relating to academic research, the previous chapter argued that networks are critical for companies to gather resources and knowledge. Furthermore, the importance of the interaction and sociality for knowledge diffusion in the CIs was noted. According to Comunian (2012), a challenge for understanding networks in the CIs is this complex nature of relations within them, which often expand over friendships and business transactions. Networks in the CIs do not only have a formal dimension but also a more social infrastructure (Comunian, 2012). Comunian (2012) suggests that "understanding that the structure of certain networks is often to be found in friendships and social relations, rather than economic reasoning, is important in this field" (p. 64). This notion is also strengthened by Fuller-Love (2009), who argue that social contacts and networks characterize the

media industry in particular, as well as Achtenhagen & Picard (2011) who suggest that interaction is important for knowledge to transfer. Malmberg & Power (2005) found that innovation mostly occurs as a result of interactions between actors, not as a result of a solitary action. Additionally, Mattes (2012) argue that there always *needs* to be some type of interaction in order for knowledge to be shared and absorbed. Knowledge spillovers are not automatic (Boschma & Iammarino, 2009; Frenken et al., 2007; Huber, 2012). Thus, as the social aspect of the CIs is argued to be important, this thesis explores *how* knowledge spills over in the CIs through a framework focused on three aspects of social interaction: face-to-face interaction, digital interaction and the buzz.

Face-to-face interaction and the buzz have long been considered central to economic geography (Asheim et al., 2007), but recently the concepts have also become central to scholars interested in urban development, competitiveness and innovation (cf. Bathelt, Malmberg, & Maskell, 2004; Grabher, 2002; Storper & Venables, 2004). The reason for this is that in the knowledge economy, companies are increasingly dependent on intangible knowledge (Asheim et al., 2007). Such knowledge is hard to transfer over information and communication technologies (Nonaka & Takeuchi, 1995). Thus, previous studies have found that face-to-face interaction and the buzz are necessary for the exchange of intangible knowledge (Asheim et al., 2007). However, Vang (2007) argues that there is a need to unpack and rethink the importance of face-to-face communication and buzz in the digital era. Recent digital developments have created new possibilities for knowledge diffusion over distances, but research on these possibilities is lacking (Bathelt & Turi, 2011). In the next two sections, literature relating to the relevance of face-to-face and digital interaction as well as the buzz in the CIs is reviewed, and their abilities to transfer different types of knowledge are discussed.

2.6.1 Face-to-face versus digital interaction

Face-to-face interaction literally means that two or more persons are physically present in a way that allows visual and physical contact (Asheim et al., 2007). Storper & Venables (2004) explain that face-to-face interaction offers an unusual capacity for interruption, repair, feedback, and learning. This type of interaction makes it possible for two or more people to both send and deliver messages simultaneously (Storper & Venables, 2004).

Face-to-face interaction is important for the CIs, because its unique capabilities that allow the transfer, interpretation, and co-development of complex intangible knowledge (Asheim et al., 2007; Bathelt & Turi, 2011). As mentioned in the chapter on knowledge in the media sphere, symbolic and synthetic knowledge are at least partly intangible, and inherent to the media sphere. Synthetic knowledge is often exchanged over a trial-and-error process, involving success and failure where physical face-to-face interaction between two parties is essential (Asheim et al., 2007).

Relating to the media industries, Teece and Pisano (1998) argue that learning, or knowledge diffusion, is often the result of such a process. Furthermore, trial-and-error processes create knowledge spillovers (Karlsson & Picard, 2011).

With digital interaction this thesis refers to computer-mediated communication (Bathelt & Turi, 2011). There is no doubt that digital means of communication have altered how people communicate (Asheim et al., 2007). Today, individuals and businesses increasingly rely on digital interaction for communication (Bathelt & Turi, 2011). Bathelt & Turi (2011) argue that previous experimental observations in social psychology research have demonstrated that digital interaction can, in part, complement face-to-face interaction. Advantages of digital interaction are that it includes a memory function and its ability to transfer codified knowledge. As for memory function, Bathelt & Turi (2011) state that interaction through digital means allow the retention and retrieval of knowledge later in time, which is not possible in the case of face-to-face interaction. As for the ability of digital interaction to transfer codified knowledge, is based on the findings of Rhoads (2010), who systematically reviewed previous research on face-to-face versus digital interaction. The scholar found, that transfer of codified knowledge and information might be performed more efficiently through digital means than face-to-face interaction (Rhoads, 2010). Apart from these advantages, Pratt (2000) found that many aspects of human interaction could not be replicated by new technology, such as e-mail, webcasting and video links. Hence, Pratt (2000) argues that such interaction cannot replace face-to-face meetings. For example, digital networking does not carry over the capacity for interruption, repair and feedback functions that face-to-face interaction offer (Storper & Venables, 2004). Thus, the complexity of intangible knowledge communicated through digital means can go misinterpreted or lost (Storper & Venables, 2004).

In addition to regular face-to-face interaction, knowledge within networks can transfer via what Bathelt (2008) refers to as the "buzz". It is important to distinguish between face-to-face interaction and the buzz, as they have often been mixed up in previous literature (Asheim et al., 2007). According to Asheim et al. (2007), face-to-face interaction primarily transmits complex intangible knowledge through formal meetings, while the buzz exists in group-based informal settings (Asheim et al., 2007). This thesis does not completely separate between face-to-face interaction and the buzz, but rather sees the buzz as an extension of face-to-face interaction.

2.6.2 The Buzz

As mentioned in the introduction of this thesis, the concept of "the buzz" refers to "a thick web of the information, knowledge and inspiration which circulate between the actors of a cluster" (Bathelt, 2008, p. 86). The buzz allows industry professionals to access knowledge through flexible methods. Flexible methods refer to both *informal meetings*, for example chatting at bars or

restaurants, and *industry events*, such as gathering for networking (Bathelt, 2008). The buzz is crucial for knowledge to flow between actors in the CIs, as the industries draw on highly intangible knowledge that is dependent on the local context (Asheim et al., 2007).

Asheim et al. (2007) argue that the definition by Bathelt (2008) can be considered quite vague, and thus the scholars point out that the *noise* concept of the buzz should be considered. With the noise concept the scholars refer to the arguments of Gabher (2002), who describe that "actors are not deliberately 'scanning' their environment in search of a specific piece of information but rather are surrounded by a concoction of rumours, impressions, recommendations, trade folklore and strategic information" (p. 209). Thus, the buzz can be understood as a non-deliberate exchange of knowledge.

The buzz is highly relevant to the media sphere, as it can be an efficient method for finding knowledge on who to collaborate with or who to talk to for the right kind of creative or technical knowledge (Asheim et al., 2007). Access to such industry or cluster specific knowledge is important because of the project-based networks archetypical for the media sphere (Asheim et al., 2007). Pratt (2012), on the other hand, argues that knowledge that is exchanged via the buzz is non-codified, time- and context sensitive. Furthermore, Asheim et al. (2007) argue, that especially symbolic knowledge spills over via the buzz. Synthetic knowledge does not transfer via the buzz that well, as such knowledge needs a more formal face-to-face setting for it to spill over (Asheim et al., 2007). The reason for this is that synthetic knowledge often is a result of problem solving and practical learning-by-doing situations (Asheim et al., 2007).

Something that is lacking in the current literature is empirical evidence on how business knowledge is exchanged. However, based on the superior qualities of face-to-face interaction, it is expected that business knowledge can transfer over face-to-face interaction. Furthermore, it is expected that business knowledge can transfer via the buzz, as it consists of a "Concoction of rumours, impressions, recommendations, trade folklore and strategic information", as described by Grabher (2002, p. 209). In order to analyse the aspects of interaction, a framework has been constructed, which is presented below in Table 2.

Table 2.

Framework for analysing interaction that facilitates knowledge spillovers

Aspect of interaction	Theoretical definition	Knowledge transferred
Face-to-face	Interaction where two or more persons are present in a way that allows visual and physical contact (Asheim et al., 2007).	> Symbolic > Synthetic > Business
Digital	Computer-mediated communication (Bathelt & Turi, 2011).	> Synthetic
The buzz	"A thick web of the information, knowledge and inspiration which circulate between the actors of a cluster" (Bathelt, 2008, p. 86). Occurs at for example informal meetings and industry events (Bathelt, 2008).	> Symbolic > Business

2.7 Concluding the theoretical framework

The above chapter of the thesis has attempted to provide a summary of the literature relating to the CIs, the media sphere, knowledge spillovers, networks and social interactions. A comprehensive review was provided about the context of the thesis. In this last section the theoretical framework will be summarized.

Based on the literature review, it can be concluded that the CIs are a truly dynamic set of industries that continuously evolve, and are thus hard to define. It is acknowledged that the CIs cannot be studied completely without structures. This thesis accepts that some kind of sub-sectors have to be defined in order to study the industries, but that it is also important to recognize the embedded character of these sub-sectors. Furthermore, digitization is changing the CIs. The media sphere is a sector that is heavily affected by digital developments (Karlsson & Picard, 2011). Digitization brings industries, such as ICT and media, closer together and creates new types of companies (Karlsson & Picard, 2011).

The CIs, including the media sphere consists of a special mix of knowledge. Based on the literature review, three knowledge bases were determined as relevant for the media sphere: a synthetic, symbolic and business knowledge base. Symbolic knowledge is especially interesting, as it is inherent to the CIs (Asheim et al., 2007), although synthetic knowledge is also important. These

knowledge bases include different types of knowledge inputs, which were summarized in the analytical framework for exploring knowledge in the media sphere. According to Preston et al. (2009), it is essential for companies within the media sphere to possess a heterogeneous mix of these knowledge inputs.

As discussed in the chapter on knowledge spillovers, knowledge can spill over within the CIs, out of the CIs and into the CIs (Frontier Economics, 2007; Jaffe, 1996; TFCC, 2015). The literature review showed that networks play a big part in such knowledge diffusion (Achtenhagen & Picard, 2011; Malmberg & Maskell, 2002; Scott, 2000). Networks can be based on geographical proximity or relations, also referred to as relational proximity (Comunian, 2012; Porter, 1998). Based on the literature review, geographical proximity is especially important for knowledge diffusion and innovation (Achtenhagen & Picard, 2011; Karlsson & Picard, 2011; Porter, 1998). However, it is suggested that a relational proximity also needs to exist between companies, as knowledge does not transfer or spill over automatically (Asheim et al., 2007; Boschma & Iammarino, 2009; Comunian, 2012; Huber, 2012). Furthermore, digital developments have made it easier for knowledge to travel over long distances, and creating networks in a broad geographical can result in the gain of knowledge that is not found locally (Nachum & Keeble, 2003). Even though digital developments have not lessened the importance of co-location, it might be beneficial to have a balance between different types of networks (Nachum & Keeble, 2003).

The CIs are characterised by its sociality, and thus interaction is an essential part of clusters, networks in general and knowledge diffusion (Achtenhagen & Picard, 2011; Comunian, 2012; Fuller-Love, 2009; Malmberg & Power, 2005). Aspects of interaction include face-to-face interaction, digital interaction and the buzz. The reviewed literature showed that face-to-face interaction is important for the diffusion of intangible knowledge, such as symbolic and the intangible aspects of synthetic knowledge (Asheim et al., 2007; Bathelt & Turi, 2011). Digital interaction can mainly transfer codified knowledge, and thus it is best for exchanging the tangible parts of synthetic knowledge (Rhoads, 2010). Lastly, the buzz, which is an aspect of face-to-face knowledge, is essential especially for the diffusion of symbolic knowledge (Asheim et al., 2007).

3. Methodology

The previous chapter of this thesis introduced the theoretical framework that will guide the empirical part of this study. Various theoretical approaches towards the CIs have been developed, and several methodological approaches have been applied in attempts to study phenomenon within the CIs. As mentioned in the introduction, this study takes a case study approach to explore complex networks and knowledge spillovers in the CIs. Stake (2005) states that a case study can focus on describing, for example, processes that cannot be studied outside of their natural setting. This is one of the key determinants that justify the use of case studies (Yin, 2014). Networks are such a phenomenon, as they cannot be taken out of their context, and the processes, such as knowledge spillovers, within them cannot be studied outside of the networks themselves. Other determinants for the suitability of a case study are that the control or manipulation of study subjects is not possible, that the theoretical knowledge on the phenomenon under research is limited or not yet mature and that the focus is contemporary (Yin, 2014). These determinants further justify the use of a case study in the context of this thesis.

After this introduction to the method, this chapter now moves on to discuss the ontological and epistemological view of the study. Thereafter, the design of the case will be discussed in detail. The subsequent sections will discuss the data collection methods, operationalization of the central concepts as well as how the collected data was analysed. The last two sections discuss the validity and limitations of the current study.

3.1 Research approach: moderate constructionism

In this study, an ontological and epistemological worldview is adopted that is closer to a constructionist than positivist paradigm. This type of worldview, or research philosophy, is suitable for the research of business networks, as pointed out by Järvensivu & Törnroos (2010).

A constructionist worldview sees the reality from a more or less subjective and situation-specific point of view (Lincoln & Guba, 2000; Schwandt, 2000). The philosophy acknowledges that the theoretical framework, the context as well as the activities of the researcher herself and her informants always influence interpretations (Lincoln & Guba, 2000; Schwandt, 2000). Hence, knowledge derived from researching networks and their activities should always be regarded as context-specific and socially constructed (Lincoln & Guba, 2000; Schwandt, 2000). However, *moderate* constructionism is not fully constructionist as it also accepts the positivist argument that there is a possibility of specific local, personal and community forms of truth. Thus, moderate constructionism sees truth to be community-based and derived from empirical data (Nightingale & Cromby, 2002; Schwandt, 2000). This type of research approach has previously been adapted in

research of business networks (cf. Järvensivu, 2007; Lundberg & Andresen, 2012), and is discussed in detail by Järvensivu & Törnroos (2010).

Järvensivu & Törnroos (2010) argue that naive constructivists use a deductive research process that starts with a set theoretical framework that is tested through empirical observations. On the contrary, moderate constructivist researchers often use an abductive process, which is described by Dubois & Gadde (2002) as systematic combining. This type of process constantly moves between the empirical part and model world (Järvensivu & Törnroos, 2010). Thus, the theoretical framework develops simultaneously with the empirical part. Dubois & Gadde (2002) explain it as follows: "the research issues and the analytical framework are successively reoriented when they are confronted with the empirical world (p. 554). This allows matching theory with reality, while also directing and redirecting the course of the study. The researcher goes back and forth between the framework, data sources and analysis (Järvensivu, 2007). Dubois & Gadde (2002) argue that systematic combining is especially suitable for single case studies. This thesis applies the abductive approach, and is thus neither fully inductive nor deductive, but rather something in between.

Both the modern constructionist philosophy and abductive research are well suited for both studies that assess old theories as well as for developing new ones (Dubois & Gadde, 2002). Even though this thesis does not aim at developing a full theory, it can be described more as a theory building than plainly theory testing study. The reason for this is that the theory of how knowledge spills over in the current context is incomplete or unknown, and thus the theoretical framework is also limited.

3.2 Single case as a study method

The case study methodology applied for this thesis is an embedded single case study. Jack (2010) conducted a systematic review of approaches to network research, and concluded that there is a need for such studies that takes an approach that is not only focused on quantitative data. Furthermore, emphasis should be placed on natural settings in which entrepreneurial companies are immersed (Jack, 2010)

Yin (2014) argues that a researcher has to carefully determine if a multiple and single-case study design is suitable in the given context of a study. On the contrary, Halinen & Törnroos (2005) argue, that due to the potential a single case study has to provide a holistic, in-depth as well as rich description of a situation in its context, it is an appropriate design for studying networks. Providing an accurate and holistic description of contemporary networks and their dynamics is such a challenging task that a single-case study as a research approach often is the only option (Halinen & Törnroos, 2005). Eisenhardt (1989) underlines the potential case studies have to capture dynamics

of a studied phenomenon. Based on these insights, this thesis argues that conducting a single case study is appropriate for the aim of this research.

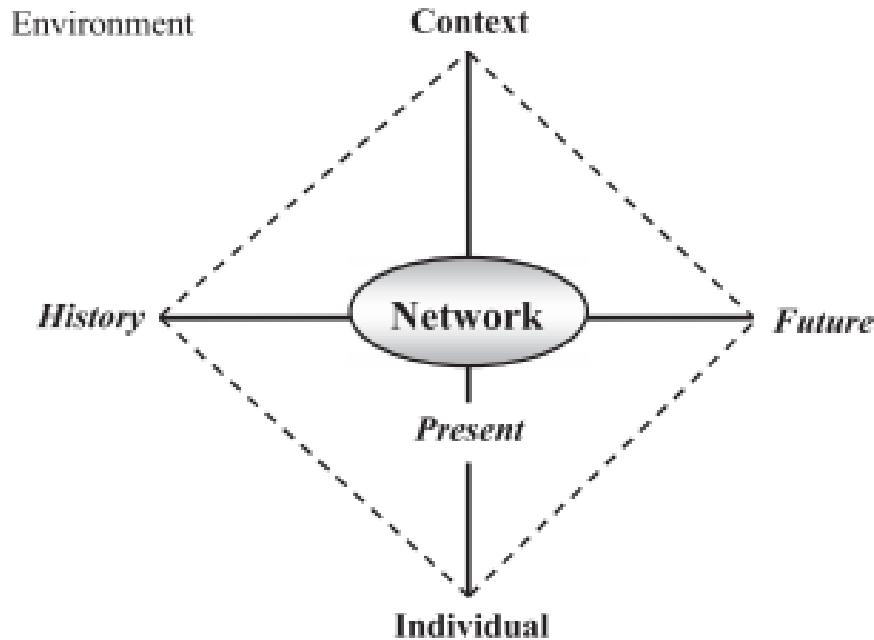
An embedded case study consists of multiple units of analysis (Yin, 2014). The identification of several sub-units permits an in-depth level of inquiry of a phenomenon (Yin, 2014). Furthermore, an embedded case study allows integrating both quantitative and qualitative methods into a single research (Yin, 2014). This was also done in the case of this thesis: the data was collected using mixed methods, with an emphasis on qualitative data. Mixing qualitative and quantitative data is ideal in the case of network research. A combination of methods offers a way to create a wider and deeper understanding of a network or case (Drakopoulou-Dodd, Jack, & Anderson, 2006). When mixing quantitative and qualitative data, the dynamic nature of networks and their influence on a company can be explored. Mixed methods in cases study can be sequential or parallel, as long as they investigate the same phenomenon (Kitchenham, 2010). In this study, the data quantitative and qualitative data is collected parallel.

3.2.1 Units of analysis

The previous section argued for the relevance and suitability of the chosen empirical method. Next, the units of analysis of study will be presented. Networks can have an "invisible" nature (Jack, 2010; Lee, 2015) - they are often informal and connections are intangible. Due to the commonly invisible nature of networks, there are several challenges when researching them (Halinen & Törnroos, 2005). When studying networks, the researcher must accept that networks are dynamic and constantly changing (Halinen & Törnroos, 2005). As processes within a network are dependent on their context, they can only be studied within it. For these reasons, Halinen and Törnroos (2005) suggest using a framework that explores the network from a holistic and contextual perspective. The framework is presented in Figure 2.

Figure 2.

General framework for the analysis of business networks in a contextual time-space. (Halinen & Törnroos, 2005)



As shown in Figure 2, both a temporal and contextual dimension should be integrated in network research. The temporal dimension stands for the past, present and future, while the contextual dimension stands for the various levels of context of a network. The contextual dimension consists of the following *levels*: the context, the network level and the individual firm level (Halinen & Törnroos, 2005). The context stands for the industry- and geographical context (Halinen & Törnroos, 2005). The network is dependent on all of these variables, and the parts are connected to each other (Halinen & Törnroos, 2005). The case of this study has three units of analysis according to this framework by Halinen & Törnroos (2005). These three units of analysis are the media sphere of the Dutch CIs, the company Elastique and their networks. The media sphere of the Dutch CIs represent the industry and geographical context, the focal company Elastique represents the individual level while the their linkages to other firms represent the networks.

The industry and geographical context is the media sphere of the Dutch CIs. Thus, this is also the first unit of analysis. The decision to focus on this specific context stems from the previously mentioned rapid growth of the Dutch CIs, and the attention it has evoked in the local government. The media sphere is an interesting focus because of the challenges and opportunities digitization brings to this specific part of the industries (Karlsson & Picard, 2011). A decision was made not to make any specific geographical restrictions, except for the context. This decision is based on that the

aim is not to only study networks based on co-location, but also wider networks based on relations.

Halinen & Törnroos (1998) describe three different approaches on how to carry out network studies: actor-network, dyad-network and a micronet-macronet perspective. This study takes an actor-network approach. In the actor-network approach, the business network is viewed from a defined actor, company or individual (Halinen & Törnroos, 1998). The method uses the perspective of an actor as the framework for understanding a network as a whole, and emphasizes the company's point of view (Halinen & Törnroos, 1998). This kind of approach is assessed as suitable for this study, as this thesis is conducting the research from a company perspective. Hence, the second unit of analysis is the focal company, Elastique. The company represents the individual level of the framework by Halinen & Törnroos (2005). The company was chosen through purposive typical case sampling, and thus the results of this study cannot be generalized to a population, but illustrate the researched processes to other similar samples. As mentioned in the introductory chapter, Elastique is a digital technology company that produces interactive mobile and web applications for media companies. The company is positioned in the media sphere of the Dutch CIs: most of their customers are from the public broadcasting industry. With 22 employees, it is classified as a SME. There are three additional reasons for choosing Elastique as the starting point. First, Elastique is located in the "media centre" of the Netherlands: Hilversum. Elastique is part of the Hilversum cluster, which makes it possible to examine the importance of geographical co-location. Second, Elastique represents a company that was founded as the result of digital developments. As this study is interested in digital developments, studying such a company is determined appropriate and valuable. Third, the research is done in collaboration with Elastique. This provided the opportunity to access all the data needed for a valid and comprehensive case.

The third unit of analysis is the full spectrum of networks of Elastique. This unit of analysis is equally important to the two previous units, but it could not be fully determined prior to the beginning of the research. Instead, the networks emerged through the discussions with the company and through examining the media sphere. The network of the company narrowed down to mostly consisting of companies within their immediate geographical proximity. Hence, the study was related more towards clustering and exploring the dynamics and knowledge spillovers in the area of Hilversum, where the company is located.

3.3 Data collection strategy

The primary sources of data in this case study are expert interviews and survey interviews. The survey interviews are designed to also generate some quantitative data. Secondary data are government and industry documents. The interviews and document analysis are qualitative. Descriptive statistics are presented and analysed based on the quantitative data. In total, nine

documents were sampled, four interviews were held and one interview survey was designed. Additionally, several informal interviews were held with Elastique. A detailed description of all of the expert interviews, as well as an overview of the participants of the survey interviews, can be found in Appendix A.

The respective methods of data collection produced data on the three levels of this study: the context, individual and network level. These levels refer to the framework by Halinen & Törnroos (2005), which was presented in the previous section. Thus, on the context level data was collected about the Dutch CIs and its media sphere. This was done through a document analysis and one expert interview. On the individual, firm, level data was collected on the focal company Elastique. On the network level data was collected on the networks of the focal company. Three interviews with the focal company as well as a survey interview produced data on the network as well as on the individual level. The design of the data collection is summarized in Table 3.

Table 3.

Summary of data collection methods

Level	Data collection method	Sample
Context	Document analysis	9 documents
	Expert interview	1 interview
Network & individual	Expert interview	3 interviews
	Survey interview	18 survey interviews

Next, the data collection procedure is presented in the order it occurred, where secondary data was collected mainly prior to the primary data. Some of the data were collected parallel.

3.3.1 Secondary data

The collection of the document-based data was done simultaneously with developing the theoretical framework. At the first stage of data collection, a large amount of public documents by several organisations were reviewed. This was done, as it is important to assess the relevance of the documents for the aim of the research question when using document analysis in research (Bowen, 2009). The documents were found through extensive research of influential organisations within the Dutch CIs, and also with the help of informants within the industry. Hence, the sampling method was partly purposive, partly snowball sampling. All of the documents were carefully assessed according to their authenticity, credibility, accuracy, and representativeness. The representativeness was based on that different types of stakeholders were represented in the sample. Hence, reports by the

government, research organisations, and industry representatives were all included. It is also important to assess how comprehensive the documents that are analysed are (Bowen, 2009). Some documents may cover only some aspects of the research topic, while some may cover the full spectrum of concepts. Both types of documents can be used, but it needs to be ensured that all concepts are covered in the final sample (Bowen, 2009). This point, too, was considered, and it turned out that it was hard to find data on some parts of the conceptual framework. The procedure resulted in a final sample of nine documents. A description of all of the documents can be found in Appendix B. During the revision and analysis of the documents, the underlying variables considering the study were revealed. This resulted in finding further dimensions and concepts relevant for the theoretical framework, which in turn resulted in finding new concepts to look for in the documents. This kind of matching of theory and reality was allowed by the abductive nature of the study, as explained earlier in this chapter.

To ensure that all points were covered after going back and forth between theory and the documents, an expert interview was conducted to fill in the gaps (see Appendix C). The interviewee was sampled through snowball sampling: recommendations by industry experts. The interviewee was a consultant in the media sphere, Frank Visser, who has been active in the CIs for nearly 20 years. The interview took 54 minutes and was held at the premises of Erasmus University Rotterdam. The aim of the interview was to clarify concepts left ambiguous in the reports and also discuss the differences in definitions and dynamics of the industries. Furthermore, the interview was especially focused on the media sphere.

3.3.2 Primary data

After the revision of the documents, three expert interviews were conducted with Elastique. Two of these expert interviews were conducted with the same person, Bart Robben, who is one of the partners of Elastique. The first interview was structured and held with Robben in order to build up the case: To gather background information on the company and explore their network. The interview took one hour and 40 minutes and was held at Elastique's office in Hilversum. The structured interview consisted of two main discussion topics: company background and network. Within the first discussion topic, the general background and positioning, services, customers, employees & company culture, strengths & opportunities and challenges & weaknesses of the company were discussed. The purpose of these topics was to get to know the company in-depth. Next, the interviewee was asked about competitors, regulatory bodies, formal networks, research organisations and other collaborators/stakeholders. The reason for this structure was to map out the network of the company for further analysis, as well as to find out how the company

collaborates with its network and how big of an impact the network has on Elastique. The full interview guide can be found in Appendix D.

Two more interviews were held with the partners of the company. The aim of these interviews was to explore the knowledge types important in the media sphere, knowledge spillovers and benefits of networks. The second interview with the focal company was held with Bart Robben. However, as noted above, the topic of the second interview was different from the first one. While the first interview explored the company on a more contextual level, the second interview studied the concepts of networks and knowledge spillovers in-depth. The third interview was held with the second partner of Elastique: Joris Diederik Lock. Two separate interviews on the same subject were held with the two partners of the company to obtain as rich a dataset as possible, and to increase the validity through multiple points of views. The two partners have different managing positions at the company, and hence it was seen necessary to have both of their opinions included in the data. These interviews took one hour and 35 minutes respectively, and were both held at Elastiques office. The interviews were semi-structured, with the aim to allow flexibility and the uncovering of implicit meanings, while still following the line of inquiry and theoretical framework of the research. A topic list was used to keep the interviews focused. In addition to the three formal interviews, several informal interviews were held with the company throughout the research. Details of informal interviews are usually recorded as field notes (Barlow, 2010). Throughout these discussions and the notes created, the understanding of the company and their network was strengthened.

In order to go in-depth on the case study on the individual level, an interview in a survey format was designed to explore how the employees of Elastique obtain and circulate knowledge. The survey was sent out to all of Elastique's 22 employees. Thus, the sampling method for the survey interview was purposive, total population sampling. Four employees chose not to answer, making the sample size 18 (N=18). This makes the response rate ~80%. The questionnaire was designed to collect mostly qualitative data with open-ended questions, but also some quantitative data. A decision had to be made whether to conduct face-to-face interviews or send out a survey. There are two reasons for conducting survey instead of face-to-face interviews in this case. First, given the size of this study, it was not considered feasible to conduct more than 20 interviews. Second, collecting multiple types of data increases the validity and reliability of a case (Farquhar, 2012). A structured survey interview is an appropriate way of doing this as it can produce both quantitative and qualitative data (Yin, 2014).

3.4 Operationalization

The next part will introduce how the central concepts of this study were operationalized.

This chapter is structured so that the research- and sub-questions are first repeated, to then summarize the central concepts that needed to be operationalized. Thereafter, the operationalization of the concepts is presented. The research question of this study asks:

"How can a digital technology SME within the media sphere of the Dutch creative industries utilize their respective networks in order to facilitate and capture knowledge that spills over?"

The first sub-question asks, *"What kind of knowledge, network and digital dynamics characterise the Dutch creative industries?"*

The second sub-question question asks, *"What types of knowledge and knowledge bases are essential for a digital technology company in the media sphere of the Dutch creative industries?"*

While the third sub-question asks, *"What types of networks facilitate knowledge spillovers in the media sphere of the Dutch creative industries?"*

Lastly, the fourth sub-question asks, *"Through what kind of interaction does different types of knowledge spill over in the media sphere of the Dutch creative industries?"*

Nine central concepts were identified relating to the research question and sub-questions of this study. These are: creative industries, media sphere, knowledge spillovers, knowledge in the media sphere, networks, face-to-face interaction, digital interaction and the buzz. The definitions of these central concepts were discussed in chapter two, the theoretical framework.

Many of the concepts were operationalized through several data collection methods. The instruments of data collection were the document analysis framework, interview guides and survey interview. All of these were designed in a way that reflects the central concepts of this study, following the theoretical framework. To present the operationalization as clearly as possible, they are presented in separate tables. Table 4 presents how the central concepts relevant for the industry and local context were operationalized through the document analysis and the first expert interview with Frank Visser. This framework also functioned as the framework for document analysis regarding industry and local context.

Table 4.

Operationalization of central concepts on industry & local context (industry documents & expert interview)

Concept	Operationalization (Documents)	Operationalization (Interview)
Creative industries	> Observed definitions	> Questions on differences in definitions > Questions on alternative definitions
Media sphere	> Observed definitions	> Questions on definition
Knowledge spillovers	> Observed references to knowledge spillovers in the Dutch CIs.	> Questions on knowledge spillovers in the Dutch CIs.
Knowledge in the media sphere	> Observed references to knowledge and knowledge infrastructure.	> Questions on types of knowledge in the media sphere and their importance.
Networks	> Observed references to networks based on geographical proximity (Porter, 1998) and relational proximity (Asheim et al., 2007; Comunian, 2012). > Observed references to advantages and disadvantages of networks	> Questions on networks based on geographical proximity and relational proximity > Questions on advantages and disadvantages of networks
Digital developments	> Observed references to digital developments and their effect of digital on CIs, media sphere and networks. > Observed references to the relationship between CIs and ICT.	> Questions on developments and their effect on CIs, media sphere and networks. > Observed references to the relationship between CIs and ICT.

Table 5 presents how the central concepts were operationalized through the expert interviews with Elastique. The interviews collected data on an individual and network level.

Table 5.

Operationalization of central concepts on network & individual level (interviews with Elastique)

Concept	Operationalization
Knowledge spillovers	<ul style="list-style-type: none"> > Questions on knowledge spillovers in the media sphere of the Dutch CIs. > Questions on how knowledge spills over through different types of interaction.
Knowledge in the media sphere	<ul style="list-style-type: none"> > Questions on knowledge important to the company. > Questions of knowledge lacking in the company
Networks	<ul style="list-style-type: none"> > Questions on networks based on geographical proximity and relational proximity > Observed stakeholders and networks as described by Elastique. > Questions on advantages and disadvantages of networks. > Questions on how actors interact within networks
Digital developments	<ul style="list-style-type: none"> > Questions on digital developments and their effect on the company, the media sphere and networks.

The interview was divided into four parts: demographics, face-to-face and digital interaction and the buzz. The third table of this section, Table 6, presents the operationalization of concepts in the survey interview. The concepts in the table are not structured in the same way as in the survey due to clarity when compared to the other tables. A detailed description of the quantitative and qualitative means of operationalization in the survey interview can be found in Appendix F.

Table 6.

Survey framework and operationalization of central concepts on individual level (survey interview)

Concept	Operationalization
Knowledge spillovers	<ul style="list-style-type: none"> > Interpretation of types of interaction that facilitate knowledge spillovers.
Knowledge in the media sphere	<ul style="list-style-type: none"> > Descriptive statistics on types of knowledge gained through different aspects of interaction. > Observed references to types of knowledge in the media sphere in qualitative answers.
Face-to-face interaction	<ul style="list-style-type: none"> > Questions on importance of face-to-face interaction in relation to knowledge > Descriptive statistics on frequency of face-to-face interaction with industry professionals > Descriptive statistics on knowledge accessed through face-to-face interaction
Digital interaction	<ul style="list-style-type: none"> > Questions on importance of digital interaction compared to face-to-face interaction and the buzz in relation to knowledge, as experienced by the interviewees. > Descriptive statistics on frequency of digital interaction with industry professionals > Descriptive statistics on knowledge accessed through digital interaction.
The buzz	<ul style="list-style-type: none"> > Questions of importance of networking events and informal interaction > Questions on importance of locating in a media cluster in relation access to knowledge. > Descriptive statistics on frequency of attending industry events as well as informal interaction with industry professionals

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- > Descriptive statistics on frequency of attending industry events as well as informal interaction with industry professionals
 - > Descriptive statistics on knowledge accessed through events and informal meetings with industry professionals
-

3.5 Data analysis

As this study uses a mix of quantitative and qualitative methods, they need to be analysed using different tools. The analytical tool used for the qualitative part is thematic analysis, while descriptive statistics are used for the quantitative data. Next, the procedures are described in detail.

Thematic analysis was chosen as the analytical tool for the qualitative data of the study. The analytical process for all of the qualitative data is described in one section, as the process was the same for all of the qualitative datasets. In thematic analysis, the researcher recognizes patterns within the data, which become the categories for analysis (Fereday & Muir-Cochrane, 2006). Furthermore, coding and category construction are innate to the analytical method (Fereday & Muir-Cochrane, 2006). Predefined frameworks can be used, and the same themes may be applied on both documents and interview transcripts (Bowen, 2009). The themes that are uncovered serve to integrate the data and as a base for the reporting of results.

After the careful sampling of documents, they were read and re-read several times. This was done to create a comprehensive understanding of what the documents did, and did not, cover. Furthermore, all of the interviews were recorded and transcribed verbatim for further analysis. The transcripts were read to create a good understanding for what was being said, even though quite a good understanding was already established during the interview itself and the transcription process. As for the survey interview data, all of the qualitative text responses were collated into one document. This document was then read carefully before starting the analysis.

The frameworks presented in the previous chapter, operationalization, acted as a guidelines for the coding processes. The framework is based on the literature review. The coding process was completed using the software ATLAS.ti. The software is designed for qualitative analysis of large textual data. Therefore, it makes the coding process easier and more convenient, compared to manual coding.

At first, large fragments of the textual data were coded. In practice, this meant one sentence to one paragraph. This initial coding, also called "open-coding", was done to find all possible themes relating to the framework. When the coding progressed, bigger, overarching categories emerged

from the data. Therefore, after the first round of coding, the codes were examined in order to look for connections and similarities between codes. This process is called axial coding. The similar codes and small concepts were collated, and more overarching codes were created based on the linkages between the open codes. For example, the open codes definitions of CIs, significance of CIs, and sub-sectors were collated into one code named definitions of the CIs. In the last step of the coding process the data was reread with the purpose to adjust codes and see if all the data that relates to the found themes were coded. The last step of the coding process is called selective coding. The codes were adjusted in order to refine the categorization of concepts, and to identify the core themes related to the research question. For example, the codes knowledge spillovers, knowledge institutions and knowledge networks were "knowledge infrastructure of the Dutch CIs. The whole process from open codes to selective codes can be found in a table in Appendix G.

The quantitative part of the surveys were analysed using descriptive statistics. In case study surveys, experimental manipulation of variables or conditions is not conducted (Chmiliar, 2010). Furthermore, surveys cannot explain causal relationships with any degree of certainty in case studies (Chmiliar, 2010). Instead, surveys can provide a normative description of how a sample is distributed considering a particular question (Chmiliar, 2010). Descriptive statistics are provided for knowledge bases and types of knowledge in the media sphere related to how it is obtained. All quantitative data from the surveys were processed first through Excel for cleaning and then through SPSS.

3.6 Validity & reliability

As pointed out by Kvale (1995), both validity and reliability are often considered assurances for "true" scientific research. Järvensivu & Törnroos (2010) propose several ways of testing and maintaining the validity and reliability in moderate constructivist case study research, based on the reasoning of several renowned scholars: Longino (2002) Lincoln & Guba and Kvale (1995).

Based on Longino's (2002) definition of valid knowledge, Järvensivu & Törnroos (2010) argue that there are three points that determine the validity of a research. First, the research's truth claims should be supported by data. Second, Järvensivu & Törnroos (2010) argue that "the claims, data, and chain of arguments linking them together are acceptable to the scientific community in light of critical reasoning and background assumptions" (p. 103). Third, the scholars argue that the scientific community, which determines the validity of the research, should be characterised by the observance of the norms of criticism, public standards and the equality of community participants (Järvensivu & Törnroos, 2010).

Furthermore, Järvensivu & Törnroos (2010) discuss validity from the perspective of Lincoln and Guba (2000) who argue that it is important to make sure everyone's voice in the research has a chance to be heard. This ensures that the research is authentic and fair, which is important for

validity (Lincoln & Guba, 2000). According to the scholars, valid research should raise the awareness of the stakeholders about the knowledge produced in the research.

A third scholar whose view on validity Järvensivu & Törnroos (2010) discuss is that of Kvale's (1995), who argues that knowledge should be validated through practice. First, validity can be maintained through continual checking, questioning, and theoretical interpretation of findings (Kvale, 1995). Second, validity can be improved through communication (Kvale, 1995). This means, that testing validity is done through a dialogue, which involves the study participants, the scientific community and the general public. Third, Kvale (1995) proposes an action-oriented concept of validity, which means that valid knowledge is knowledge that helps us take action, and reaches the desired results through ethical methods.

Based on these scholars and their proposed safeguards for validity, it was attempted to uphold the validity of this thesis through the following means. First, it was made sure that the arguments made are backed up by the data collected, and that they are reasonable in light of the theoretical context and critical reasoning. Second, it was continuously checked and questioned how findings are interpreted, through thinking of alternative explanations. Third, the community was taken into account. This has been done through continuously discussing the topic, the findings and the theory with stakeholders of the study. Through this dialogue, all possible voices have also been recognized and given the chance to be heard. Fourth, it is attempted to increase the knowledge on the studied issue and thus the aim is to help the stakeholders take action. Although these measures have been taken, the readers of this thesis, both academics and industry practitioners, are the final judges of how well this thesis has succeeded in establishing a valid study.

3.7 Limitations

The first, and most notable, limitation of this study is the lack of the voice of multiple actors of the studied network. This study heavily emphasised the individual level of network research. However, this was not the initial plan. A questionnaire was designed and sent to all of the stakeholders identified by Elastique. However, the response rate was extremely low, being less than 10%. Therefore, the questionnaire was not used in the final study. It can be argued, that the opinions and knowledge of the stakeholders would have given more credibility for the study, and made it more usable. However, if the emphasis had been on the network, it would not have allowed for the study to go as in-depth. Focusing on the individual level of network allowed studying all of the employees of Elastique, whom of most hold different positions. This gave a wider and more diverse set of opinions and perceptions of the studied phenomenon compared to a questionnaire filled in by only people in a higher, managing position of companies. Furthermore, the partners of

Elastique were interviewed in-depth. Thus, the datasets from the expert interviews and survey interviews could be compared for more comprehensive and valid results.

Another limitation of this study is that the documents can be argued to have provided insufficient detail on the studied phenomenon. As documents are often produced for other purposes than research, they are not created for a research agenda. Furthermore, when analysing documents, there is not the possibility of follow up questions and other communicative advantages, which are inherent in some other types qualitative research methods, such as expert interviews. However, a lack of social interaction can also be seen as an advantage, as documents are unaffected by the possibility of the researcher's influence on the interviewee or other study object. Also, when using documents, repeated reviews of the study can be conducted.

Lastly, it has to be noted that the current study provides cross-sectional data. This means, that the data is collected at one specific point of time. Thus, it provides only a snapshot into the dynamic, constantly changing industries. Even though the dimension of time was somewhat integrated into the research through the document analysis and analysis of digital developments, it is impossible to predict the future.

4. Results: Part one

This chapter will report the first part of the empirical findings of the current study: an analysis of the Dutch CIs and its media sphere. Thus, this part relates to the first level of analysis: the industry and geographical context. The data was collected through one expert interview and an analysis of nine documents. The results presented in this chapter are related to the first sub-question of this study, which seeks to explore *"What kind of knowledge, network and digital dynamics characterise the Dutch creative industries?"*

Before proceeding to the results and its analysis, the Dutch CIs needs to be defined. The CIs in the Netherlands are defined according to certain sectors, similarly to the policy-oriented definitions by Throsby (2008) and the UN (2010). However, there are great differences in which sub-sectors to include in the main three sectors. Three main sectors within the CIs are identified and referred to by all of the analysed documents. These are (1) The arts and cultural heritage (2) Media and entertainment and (3) Creative business services. The sectors are based on SIC (Standard industrial classification) codes.

Relating to the focus on the media sphere, there is a clear cut between traditional and new media. Interestingly, the analysis of the documents revealed that per policy and traditional Dutch definitions of the CIs, new media is not a part of the media & entertainments sector. Some of the documents exclude new media and ICT from the CIs as a whole, while other include them in the creative business services sector. However, it was also mentioned in several of the documents that the emergence of cross- and new-media blurs the boundary between CIs, ICT and sectors within them. This point will be elaborated later in this chapter in the section "digital developments". A reason for that the definitions differ is tied to the perspective of the author. The interviewee Frank Visser explains, that for example the Ministry of Economic Affairs define the sectors according to economically contributing sectors, while the Ministry of Education, Culture and Science looks at it from a broader perspective: simply from what is produced creatively. Hence, the definition of the latter ministry includes more sectors in its definition.

4.1 The networked industries

According to Jeffcutt (2004), the networked character of the CIs should be emphasized as the CIs are trans-sectoral, trans-professional and trans-governmental. The results of the empirical research indicate that The Dutch CIs are highly networked on a sector- and company-level. The themes company interdependence and sector interdependence recurred throughout the dataset.

The theme company interdependence refers to the importance of networks for the survival and growth of companies within them. In one of the documents, the authors illustrated this as follows "The creative industry is a prime example of the fast-growing network economy of SMBs,

sole proprietorships, and start-ups, in addition to a smaller number of large companies" (Ministry of Education, Culture, and Science & Ministry of Economic Affairs, 2015, para. 6). SMBs stand for small to medium sized businesses. Strong evidence for the company interdependence of the Dutch CIs is that they are heavily clustered. This is especially true for the media sphere. The biggest media clusters in the Netherlands are in Amsterdam and Hilversum. Hilversum is in the immediate proximity of Amsterdam, which accommodates a broad range of media companies, while Hilversum is "the heart of the broadcasting and media industry" (Ministry of Education, Culture and Science, 2014, p. 10). The *Monitor Creatieve Industrie* report (Rutten & Koops, 2017) states that Hilversum is the "media capital of the Netherlands" (p. 54), although it is also pointed out that the cluster is gradually moving into the cross-media era by for example the *Creative Industries As A Flywheel* research-report (Marlet, Rutten, & van Oort, 2013).

According to Karlsson & Picard (2011), media companies cluster because it promotes and improves the production capacity of media companies through partnerships, projects and networks. The empirical findings based on the expert interview indicate, that networks and especially partnerships within the media sphere are important. Commenting on the Hilversum media cluster, Frank Visser notes that, "Everyone in the media industry is close by, if you're not close by you're not in the media industry", referring to companies clustered in Hilversum and highlighting the importance of geographical proximity within the media sphere. Furthermore, Visser argues that the importance of geographical proximity stems from trust, and he points out that "All of the people from the clustered companies know each other". Thus, co-location seems to enhance partnerships and networks, but this part of the dataset fails to prove what the benefits of such partnerships and networks have in terms of access to knowledge. However, the second part of the empirical findings will elaborate on this topic in Chapter Five.

Companies that rely too much on local knowledge risk being locked into the knowledge they already possess and lose their ability to adapt to new developments (Grabher, 1993; Nooteboom et al., 2007). Visser notes that companies geographically close to each other might remain too satisfied with "what they have", and not seek knowledge and new technology from the outside. This indicates that the media clusters in the Netherlands are in risk of keeping their clusters too tight. A way of avoiding such risks is to establish a balance between local and global networks (Nachum & Keeble, 2003). The results of the document analysis suggest that international networks are important and have potential, but are rarely found in the Dutch CIs. A common view amongst the authors of the reports is that such networks are important because they allow companies to stay connected to the international dynamics of knowledge and innovation. For example, the open letter by the government, *The Creative Industry Illustrated*, argues that "By working in flexible international

networks, the sector is able to quickly respond to new developments [...] Knowledge or skills that are missing can be found in a network with other creative companies, and there is close cooperation in interdisciplinary, international teams" (Ministry of Education, Culture, and Science & Ministry of Economic Affairs, 2015). It does not seem that Dutch companies within the CIs are able to utilize the potential global networks have to offer in regards to varying types of knowledge inputs (Nachum & Keeble, 2003), even though the potential is acknowledged.

The second theme that emerged from the data relating to the networked character of the CIs, "sector interdependence", relates to that it is important for sectors within the CIs to work together, and that personnel often move between sectors. The theme was particularly apparent in the *Creativity as a Flywheel* research-report, which stated, "It becomes clear how relationships are maintained between different business sectors through personnel exchange from different sections of the creative industries. These relationships are an important precondition for mutual influence and new combinations" (Marlet, Rutten, & van Oort, 2013, p. 10). This indicates that the Dutch CIs are trans-professional in the sense that people from differing sectors easily can move from one sector to another, and that skills found in different sectors are similar. These findings are in line with the arguments of Jeffcutt (2004), who previously found that there is a strong interconnection between creative occupations. Jeffcutt (2004) also argued that the CIs are trans-sectoral, in the sense that the sub-sectors are not disconnected but shaped by their interconnectedness. The results above indicate that the Dutch CIs are besides trans-professional also trans-sectoral in the sense that the sectors closely work together.

4.2 The knowledge intensive industries

The next section focuses on knowledge in the Dutch CIs. The role of knowledge, and especially *skills*, was discussed through most of the documents. However, issues related to the flow of knowledge and types of knowledge were not particularly prominent in the document dataset, although some documents discussed knowledge spillovers. The documents had varying approaches to discussing knowledge; some were concerned with knowledge networks, others with general knowledge infrastructure of the Netherlands while some discussed the role of research institutions and universities.

For the context of this study, an interesting finding is that knowledge is highly tied to people, and thus spills over as a result of the movement of people within the industries. As mentioned in the previous sector, people can easily move from one sector to another. As a result of people changing from one sector or industry to another, knowledge and especially skills diffuse within the CIs. The authors of the *Creativity As A Flywheel* report state that "Knowledge spillovers occur through this movement of personnel between companies and sectors and are a prerequisite for innovation"

(Marlet et al., 2013, p. 4). Thus, knowledge spillovers occur when one person moves from a company to another. Visser, when asked how knowledge spills over, explains that

A company hires someone who has recently worked for a customer of theirs, so to be sure they take in the knowledge that he has acquired working for that customer, I think those things also happen. That's really in the sense of 'tell us what you did there', but they know, like these flowers they have to have bees and the bees goes from one to another, and the pollen goes from one flower to another. (Visser)

He further stresses that this type of knowledge flows between companies mainly because the companies are co-located, because people know who has worked for which customer and who possesses what type of knowledge (Visser). These findings strengthen the evidence on the trans-professional character of the CIs (Jeffcutt, 2004), which discussed the interconnectedness of different parts of the CIs. Furthermore, the above empirical results indicate, that knowledge spillovers do not happen automatically, as noted in the literature review (Boschma & Iammarino, 2009; Frenken et al., 2007; Huber, 2012). Some kind of interaction is needed for knowledge to spill over (Mattes, 2012), which will be further elaborated in the next chapter.

Event though the documents failed to provide any data on which knowledge bases are important for the media sphere, knowledge types were discussed with Visser. From the interview, it became clear that especially business knowledge is important, as it is often lacking in the CIs. The same was suggested by Preston et al. (2009), as presented in the literature review. For example, referring to business knowledge Visser explained, "People from the creative industries should be more aware of the money side of things", and further argued that it is important for companies and individual to know where and how they can add value. Additionally, Visser explained that companies in the media sphere need a mix of different types of "specialists" who are highly skilled in different types of domains. This indicated, that a heterogeneous mix of knowledge is important, as also suggested by Preston et al. (2009).

4.3 Digital developments

The literature review showed, that the media sphere has been exceptionally affected by digital developments (Karlsson & Picard, 2011). Additionally, advances in ICT have stimulated the emergence of new types of services (Karlsson & Picard, 2011). According to the empirical results, the media sphere has gained a lot of attention regarding the effects of digital developments. The dynamics of digital developments and their effect on the CIs is clearly one of the most discussed and complex issues discussed in the analysed documents. For example, the *Designing A Country* booklet

(Ministry of Education, Culture and Science, 2014) summarizes this as follows: "Digitisation and the rise of the Internet have boosted its [the creative industries] importance while at the same time changing it [the creative industries] dramatically" (p. 7). A common view amongst the analysed documents was that sectors are merging and emerging. The strongest evidence especially applies for the media sphere, where new services combining creativity and technology. For example, one of the documents argues, "Within the creative industries these are for the most part sectors wherein ICT and existing creative industries combine or out of which new sectors emerge" (Marlet et al., 2013, p. 33).

There is one new sector that has already become quite established: the cross-media sector. Five of the analysed documents mention this new sector, but only the *Monitor Creative Industrie* report (2017) elaborates on the concept. The cross-media concept is something that has evolved from the overlap of products, services and professions between the CIs and ICT (Rutten & Koops, 2017). This overlap makes it difficult to make a distinction between occupations between the two (Rutten & Koops, 2017). Thus, cross-media is the connecting link that exists between the media sphere of the CIs and ICT. These findings indicate, that the media sphere is at least partially converging with the ICT sector, as suggested by several scholars before (Collis et al., 1997; Karlsson & Picard, 2011; "The great convergence gamble," 2000). Pratt (2000) argued that such a perspective is prone to technological determinism, but as shown by the empirical results above, the possibility of a convergence should not be completely dismissed. As discussed in this thesis in the section that defined the Dutch CIs, the boundaries between sectors are blurred because of the emergence of new digital sectors. There is clearly some confusion on where to place the new sector, which constitutes a challenge for the analysis of companies within it.

According to Visser many digital technology companies position in the media sphere nowadays, and he argues that "You see a number of companies coming from the ICT world, developing themselves and turning into media companies. We call these companies digital agencies". He continues by explaining the function of such companies: "They position themselves between advertising agencies, ICT companies, television companies, but they do not make television, they do not do advertising, they do not do ICT or cloud services - but you need to go to them to get a combination". Thus, new services, which include the creation, manipulation and distribution of digital content, also seem to be emerging, as suggested by the literature review (Gillespie et al., 2001; Karlsson & Picard, 2011).

5. Results: Part two

In the previous chapter, the empirical findings related to the first level of analysis, the context, were presented. In this chapter, the empirical findings related to the individual and network-level are introduced. This thesis took a focal-company approach to studying networks. Thus, this chapter begins with a rich description of the focal company Elastique.

5.1 Elastique: A rich description

Three co-founders established the company Elastique in 2008 as a creative digital agency creating interactive online experiences for their customers. Most of these customers come from the Dutch public broadcasting industry. Thus, the company is positioned in the media sphere. Robben states: "We've worked for every public broadcaster, except for one" (Robben, 1). In addition to customers from the public broadcasting industry, the company has and has had customers from the commercial broadcasting industry. Furthermore, they work on projects with corporate and enterprise clients.

As described by one of the partners, "There is an Elastique before the first of October 2013 and an Elastique after [the first of October 2013]" (Robben, 1). With this the partner refers to "the turning point of 2013" (Robben, 1), when Elastique became a digital production agency. Before that, the company was focused on the conceptual part of production, such as interaction design. Thus, they saw themselves as a creative digital agency, and more as a part of the cross-media sector (Robben, 1). The cross-media sector was described in the previous chapter as a strong emerging digital sector at the intersection of ICT and the media sphere. Robben (1) explains, "Before the 2013 era, when we got a lot to do into the trans-media part, we got a lot of trans-media projects, but that's something, that we, well not completely, but well yeah we lost it out of sight". As a digital production agency, the company focuses on producing software instead of content. For clarity, the company is referred to as a digital technology company in this thesis, not to mix up with content production. The change of focus made a huge difference for the company, which has seen a big growth during the recent years, both in terms of revenue and employees. Today, the company has 22 permanent employees, and ambitious plans to grow further. The employees consist of for example digital designers, web- and mobile developers, project managers, engineers and concept developers. Furthermore, the company hires project-based freelancers. Although the company now focuses on software production, they have plans to bring back and grow the portion that focuses on content. Robben (1) explains that

Last year, we decided, we said okay, we founded this company based on that we wanted to think of concepts and do the technical realizations, okay, we took a focus on technical realization, until twenty [employees], and we decide okay, if we want to go to thirty [employees], then we need the conceptual part in again, back. (Robben, 1).

Based on the above description, it can be concluded that the company fits Karlsson & Picards (2011) description of a media company in the digital era, where advances in ICT has stimulated the emergence of new services. As described in the theoretical framework, the scholars explain that such companies often participate in the creation of, for example, software (Karlsson & Picard, 2011), which is what Elastique produces. However, the company does not position in the cross-media sector. Nevertheless, it is interesting for the topic of this thesis that the company aims to bring back more of the content production, which necessitates symbolic knowledge, as described by Preston et al. (2009). Preston et al. (2009) argue, that symbolic knowledge in the media sphere consists of creative knowledge related to digital media authoring, design, textual/editorial and production functions, as well as experience on working on content titles. The following section explores what knowledge Elastique currently perceives as valuable for the company.

5.1.1 Essential mix of knowledge

The aim of the exploration of knowledge was to determine what type of knowledge and knowledge bases is important for a digital technology company in the media sphere. The following findings relate to the second sub-question, which asked, "*What types of knowledge and knowledge bases are essential for a digital technology company in the media sphere of the Dutch creative industries?*"

The empirical results, which are presented next, indicate that the most important knowledge bases for the focal company of this study are synthetic and business knowledge. Practical examples of synthetic knowledge in the media sphere are technical knowledge, know how and knowledge related to experience (Asheim et al., 2007; Asheim & Hansen, 2009). Such knowledge was discussed by both of the partners of Elastique. For example, technical knowledge is important for Elastique because "the industry is moving so fast" (Diederick Lock), and because of the nature of their business (Diederick Lock; Robben, 2). Furthermore, Robben (2), when asked about intangible knowledge, explains that the importance of intangible knowledge stems from the interaction between customers and the supplier, by saying

It's [intangible knowledge] more like an experience thing, that you can think of a concept for example, or how do you present the concept... Well, if you break down everything, it's more

on communication, so how do you bring your ideas that are your ideas, the best to your clients.

Diederik Lock also mentions the importance of understanding customer specific problems, and notes that "If you don't know what you need to solve, then you can't find a good solution" (Diederik Lock). The sort of knowledge the partners talk about is assessed as synthetic as such knowledge is related to technical systems and is often formed in response to the need to solve specific problems through interaction between customers and suppliers (Asheim et al., 2007; Asheim & Hansen, 2009).

Both partners assessed business knowledge as important for the company. Robben (2), for example, commented,

I think the knowledge that's important is some basic business knowledge, so how does the counting work, and that type of things. You should have some knowledge about the legal parts, about how do you protect an overcome legal issues. (Robben, 2)

An interesting topic related to business knowledge that emerged from the data was international industry knowledge. Industry knowledge is a part of the business knowledge base, as described by Preston et al. (2009). This topic was discussed by both of the partners. The topic relates to that a digital technology company has to have knowledge on what is happening in the industry locally and globally. Locally, it is important to understand small and big changes in the media industry and why they are happening, and to stay up to date on what is going on with the customers (Diederik Lock; Robben, 2). Globally, it is most important to monitor the industry leaders (Robben, 2). For example, Robben (2) explains that,

It's very important to follow up on the big companies like Apple, Google or Microsoft, because they are dominating the industry, and especially for us who have small companies, we are dominated by them, so if they decide to go to the left, we go to the left. (Robben, 2)

This topic is heavily connected to relational networks, and is thus analysed in the next section. In addition to these findings, the importance of business knowledge was reinforced by the findings in the previous chapter. The results of the expert interview discussed in the previous chapter indicated, that business knowledge is important for the media sphere in general.

Interestingly, there was not as much evidence on the importance of symbolic knowledge inputs as expected. The symbolic knowledge base was expected as important as it is inherent to

media sphere of the CIs (Asheim et al., 2007; Asheim & Hansen, 2009; Preston et al., 2009). Symbolic, creative, knowledge was only mentioned Diederik Lock. Thus, evidence that a heterogeneous mix of knowledge includes symbolic knowledge in addition to synthetic and business knowledge was not strong (Preston et al. 2009). A possible explanation for these results may be the lack of adequate understanding of the symbolic knowledge concept. It was understood and explained quite differently by the interviewees. Hence, caution should be used when drawing conclusions from these results. However, it can be concluded that this thesis failed to assess that the synthetic, symbolic and business knowledge bases are all as important for a digital technology company, as expected based on the theory on heterogeneous mix of knowledge by Preston et al. (2009).

5.2 Networks facilitating knowledge spillovers

The following results account for the network level of the study. Knowledge spillovers were also studied on this level, and thus the results on the research topic are integrated in this section. These results relate to the third sub-question of the study, *"What types of networks facilitate knowledge spillovers in the media sphere of the Dutch creative industries?"*

From the interviews, it became clear that Elastique is mainly involved in two types of networks: a geographical cluster and project based temporary networks. These findings were expected as such networks were assessed as important for the media sphere by the literature reviewed (Asheim et al., 2007; Asheim & Hansen, 2009; Preston et al., 2009). Elastique is located in Hilversum. As reported in the previous chapter, the city is described as "the heart of the broadcasting and media industry" (Ministry of Education, Culture and Science, 2014, p. 10). Hilversum hosts the "Hilversum Media Park", which is a large business park, and the very centre of media activity in Hilversum. The park hosts not only many of the Dutch public broadcasters, but also a broad range of other media companies. Furthermore, most of the remaining Dutch public broadcasters not located in the media park are located in other parts of Hilversum. Thus, Elastique is located in close proximity to their biggest customer base, the public broadcasters. Other companies Elastique collaborate with, as well as many of their competitors, are located in Hilversum or in its immediate proximity. Robben (2) explains that the distances in the Netherlands are so small, that in his opinion, the area of Utrecht, Amsterdam and Hilversum, can also be seen as one big cluster. The company creates project-based networks with companies based in this slightly larger geographical area. Hilversum, being located between Utrecht and Amsterdam, is in the middle of the big cluster.

Both of the partners of Elastique agree that co-location has advantages in terms of access to knowledge, although these advantages are not specific to Hilversum (Diederik Lock; Robben, 2). As mentioned in the previous chapter, the results of the expert interview with Frank Visser also

indicated that co-location is important. The following results will elaborate on the reasons why. There is a consensus between the partners on the opinion that industry knowledge specific to the broadcasting industry circulates in Hilversum. Furthermore, co-location seems to enable frequent face-to-face meetings, which is one of the main advantages of clustering as previously found by Achtenhagen & Picard (2011) and Malmberg & Power (2005). According to previous research, such face-to-face meetings should enable access to intangible knowledge (Asheim et al., 2007). The same reason for the importance of face-to-face meetings is also found in this study. For example, Diederik Lock explains that "It's easy to have meetings and communications and talk to each other, that threshold is lowered, and I think that communication is the most important part in sharing the knowledge, especially the knowledge that is not on paper". The findings presented in this paragraph are reinforced by that both of the partners agree on that digital developments have made communication easier, but that it has not lessened the importance of face-to-face interaction and co-location. The literature review indicated that scholars have differing opinion on how digital developments have affected the significance of co-location (Cairncross, 2001; Coyle, 1997; Pratt, 2013; Scott, 2006). However, the majority agree, that spatial proximity is still important even though digital advances have made communication over distances easier. Robben (2) argues that even though digital developments are making distances smaller, it does not affect the importance of being physically in the same place. Diederik Lock confirms the same, as he throughout the interview emphasizes the importance of face-to-face interaction. In relation to why face-to-face interaction is still so important even though digital communication is so easy, he comments that "It's very important that you see each other, that you talk to each other, that you have a kind of understanding, that you know the people behind your email".

Although co-location has clear advantages, a disadvantage is that tight clusters risks not letting new knowledge enter the area (Grabher, 1993; Nootboom et al., 2007). The partners of Elastique discuss such risks. Diederik Lock explains that clustering creates kind of a "bubble", and in this bubble, only certain type of knowledge stays inside, which might block new players or new knowledge to enter. Robben indicates the same: the partner explains that "There is some view on Hilversum, it's like an ivory tower, it's not easily accessible for people" (Robben, 2). With this the partner refers to that the cluster is closed off for people from the outside, as all people working within the broadcasting industry know each other well. Furthermore, Robben argues, that the Hilversum cluster lacks organisation, which is a clear disadvantage of the area. However, Diederik Lock also notes that such a "bubble" can facilitate access to specific knowledge. Diederik Lock explicitly refers to the "inside information" of a cluster when asked about knowledge spillovers. The partner refers to knowledge which is circulated through the "the buzz", as described in the

theoretical framework as a thick web of knowledge circulating in the CIs (Bathelt, 2008). Knowledge diffused via the buzz considers information on who to collaborate with or who to talk to for the right kind of creative or technical knowledge (Asheim et al., 2007), as well as rumours, impressions, recommendations, trade folklore and strategic information (Grabher, 2002). Diederik Lock explicitly argues, that such inside information gives access to knowledge about who to work with, who to contact and "Information that can smoothen the process". Furthermore, the partner argues that informal meetings, meet-ups and congresses enable knowledge to spill over. Diederik Lock comments, "When you talk more informal about things, then you can make connections that you are not looking for".

According to Nachum & Keeble (2003), there is a need for firms to establish a balance between local and global links to other companies. The findings of this study indicate, that by creating international networks, a digital technology company can close gaps in missing knowledge. The partners comment that they have not formed international networks, although they wish to do so. The partners agree on that such networks can be off big advantage in gaining an essential mix of knowledge. A reason for this is that "Every country has its own things that you can learn from and you need to adapt to" (Diederik Lock). Another positive advantage of such networks, mentioned by Robben (2), is that through monitoring international networks and companies the different actors can learn from each other and from the way they solve problems. International networks can bring companies out of the cluster "bubble", as networks that are not restricted to an area can facilitate a company with knowledge that extends beyond the boundaries of a local environment (Nachum & Keeble, 2003). This topic is further connected to that of international business knowledge, which was discussed in the previous section. Such knowledge was assessed as important for the company, which further stresses the importance of creating global networks.

It is important to be cautious and aware of that even though knowledge is shared in networks, as discussed in this section, it does not necessarily result in knowledge spillovers. As for networks based on co-location, the partners of Elastique had somewhat differing opinions on how well the knowledge that is shared or available is spilled over to another actor within a cluster. One of the partners discusses factors that are blocking spillovers, while the other elaborates on the factors enabling knowledge spillovers. One of the partner's pointed out that there is a need to solve some basic problems first before allowing the possibility for knowledge to spill over, by saying "There is not the ability of having spillovers because we need to solve housing and food, jobs and competitors, so there is a lot of possibility for spillovers" (Robben, 2). Furthermore, Robben (2) argued that there is a "fear of sharing knowledge" in the cluster. The partner explains that during meetings between stakeholders of the Hilversum cluster, where there is potential of knowledge sharing, it is often

blocked by the presence of two competitors. Thus, the reluctance of sharing knowledge blocks knowledge from spilling over in settings where there would be a possibility for it. This disadvantage of clustering, the fear of sharing knowledge, was also found by Achtenhagen & Picard (2011). As for networks that are not based on co-location, such as the international networks that were discussed in the previous paragraph, the partners do agree that knowledge *can* spill over, but there was no indication that it actually happens. Furthermore, the results indicate, that face-to-face meetings are more effective for knowledge to spillover. For example, Diederic Lock comments, "I think also in digital communication [knowledge can spill over] but I think it's easier when you meet people physically".

Based on the above findings, it cannot be concluded that knowledge spills over in networks, but a conclusion that can be made is that there is a *potential* for knowledge spillovers. Especially face-to-face interaction facilitates valuable opportunities for knowledge to spill over, even though it is suggested that knowledge might also spill over distances. These findings are in line with the reviewed literature, which indicated that some kind of interaction is important for knowledge to spill over in the media sphere, due to its social character (Comunian, 2012; Fuller-Love, 2009; Malmberg & Power, 2005; Mattes, 2012).

5.3 Interaction facilitating knowledge spillovers

This section introduces the results of the survey interview, relating to the individual level of this study. Thus, this section relates to the fourth sub-question, "*Through what kind of interaction does different types of knowledge spill over in the media sphere of the Dutch creative industries?*" The survey interview produced both qualitative and quantitative data on different aspects of interaction and what type of knowledge the participants experience they can gain from such interactions. The survey interview was sent to all of Elastique's 22 employees, which of 18 were returned.

5.3.1 Face-to-face versus digital interaction

In the first part of the survey interview participants were asked about how they value face-to-face interaction versus digital interaction in terms of access to knowledge. The following results proved, that face-to-face interaction is more valued than digital interaction because it allows the use of complex communication techniques, which in turn permits the exchange of knowledge types within the synthetic and business knowledge bases.

First, the participants were asked to report how often they use the respective method of interaction. The results are shown in Table 7.

Table 7.

Frequency of face-to-face and digital interaction with other industry professionals

Frequency	Face-to-face interaction	Digital interaction
Almost every day	1	1
4-5 days a week	1	3
2-3 days a week	8	4
Once a week	2	4
Less than once a week	6	6

Note: Out of 18 participants

As seen in Table 7, most of the survey interviewees interact with other industry professionals 2-3 days a week or less. A third of the participants, six people, do not interact with other industry professionals through face-to-face or digital interaction on a weekly basis. Furthermore, it was asked what types of digital means are used for interaction. The participants reported to mostly use email and messaging apps for communicating with their stakeholders through digital means. Work oriented platforms, such as Google hangouts and Slack, were also mentioned as popular options. Skype was used by a third of the participants, while only a few used social media for interacting with other industry professionals.

Out of the 18 survey interviewees, a far majority, 16 out of 18, expressed that they preferred face-to-face interaction to digital interaction in most situations. Previous studies exploring social interactions have observed that face-to-face interaction is important for the transfer of knowledge, as it allows interpretation, co-development, learning and feedback (Asheim et al., 2007; Pratt, 2000; Teece & Pisano, 1998). The findings presented below confirm these arguments, as the most pervasive reasons related to the importance face-to-face interaction was that it allows the use of complex communication techniques. According to the results, when communicating with someone face-to-face, it is possible to use all senses and add personality and emotions to the conversation. Almost all of the participants agreed on this point. For example, one participant said "Face-to-face interaction is more engaging on a social level since you can use all your senses, in digital interaction you only have your eyes and ears to interpret what someone means" (Participant 6). Furthermore, face-to-face interaction allows giving feedback, better explanation and follow-up questions. In one case, a participant thought that "Face-to-face interactions are more useful because, regardless of conciseness, is more effective in understanding each other beyond reasonable doubt" (Participant 5). Another participant expressed that "[face-to-face interaction can

offer] conversation where you can react real-time with another person" (Participant 10). Previous studies show that digital networking does *not* carry over these complex communication techniques, such as the capacity for interruption, repair and feedback functions that face-to-face interaction offer (Storper & Venables, 2004). Thus, intangible, complex knowledge communicated through digital means can go misinterpreted or lost (Storper & Venables, 2004). The survey interviewees had similar opinions on the weaknesses of digital interaction: digital interaction facilitates misunderstandings and digital equipment creates a barrier for the use of all communication techniques. For example, one participant argued

There is a high chance that you lose time in not getting the right information you asked for. This is due to conversational conventions that people have to please each other and be kind to one another. Before you know you're talking off-topic. (Participant 1).

Thus, based on these qualitative results, face-to-face interaction seems superior to digital interaction for the diffusion of intangible knowledge, be it synthetic or symbolic.

In spite of the fact that face-to-face was seen as a strong way of gaining and sharing knowledge, some weaknesses could also be identified from the analysis of the qualitative data. Participant eight argued that digital interaction can completely replace face-to-face interaction in his or hers opinion, while another said that "Face-to-face interaction isn't that important for developing my professional knowledge, there's lots of knowledge available through digital means" (Participant 14). These comments reinforce the theories of that face-to-face interaction can in part be supplemented by digital interaction, although no strong evidence was found. According to Bathelt & Turi (2011), previous studies have found that digital interaction can complement face-to-face interaction. Based on the above findings, this seems to be true, but it may depend on the person and his or hers personal preferences.

Two factors that match previous research on the usefulness of digital interaction emerged from the analysis. Previous studies have concluded, that advantages of digital interaction are that it allows the use of a memory function and that it allows the codification of knowledge (Bathelt & Turi, 2011; Rhoads, 2010). The most interesting point for the aim of this thesis is the factor that digital interaction allows the codification of knowledge, which was mentioned by 11 out of the 18 respondents. Relating to the factor, one participant gave the following example when asked about situations when digital is preferred: "I prefer digital interaction when there is anything to be defined that required an high level of formality, like defining a communication protocol between systems, or a particular system architecture" (Participant 14). The second advantage of digital interaction is that

through digital means, information can be saved and the communicator can go back in time. This relates to the memory function of digital interaction, which makes it possible to go back in time as well as time scheduling (Bathelt & Turi, 2011). For example, one participant said, "It is easy to refer back to things that have been said and recorded digitally" (Participant 5). Furthermore, findings of this study indicate that digital interaction is efficient for short messages and confirmations.

Thus far, this chapter has presented qualitative results that indicate that face-to-face interaction is important for the transfer of intangible knowledge, and digital interaction is efficient for diffusion of codified knowledge. To take a closer look at what type of intangible and tangible knowledge these encompass, the survey interview collected both qualitative and quantitative data on the types knowledge the participants gain through face-to-face versus digital interaction. The results are shown in Table 8.

Table 8.

Number of participants that can access a specific type of knowledge through face-to-face and digital interaction

Type of knowledge	Face-to-face interaction	Digital interaction
Technical knowledge	10	9
General know-how	14	13
Intangible knowledge related to experience	6	3
Creative knowledge	2	4
Knowledge specific to the media sector	12	9
Knowledge on the creative industries	4	5
Knowledge on the market	13	7
Other	0	1
None	0	1

Blue: Synthetic knowledge, **Purple:** Symbolic knowledge, **Green:** Business knowledge

As seen in Table 8, synthetic knowledge, especially technical knowledge and general know how, is accessed almost equally through face-to-face and digital interaction, as the number of participants reporting to gain different types of synthetic knowledge only differs by one. As for intangible knowledge related to experience such knowledge could be better accessed through face-to-face interaction. The finding can be explained by that synthetic knowledge is not completely intangible (Asheim et al., 2007). Instead, synthetic knowledge is created both through intangible processes, such as interaction and doing, and by tangible means, such as reading documents and other codified

methods (Asheim et al., 2007). Thus, tangible part might be accessed through digital means while the intangible aspects are accessed through face-to-face interaction.

An interesting finding is that numbers reporting on gaining creative knowledge through either face-to-face or digital interaction is very low. Only two people answered they gain creative knowledge through face-to-face interaction, while four people said they gain creative knowledge through digital interaction. More people reported gaining creative knowledge through digital interaction than face-to-face interaction, as seen in the Table 8 above. This was unexpected, as previous research has concluded that creative knowledge, being symbolic, requires face-to-face interaction (Asheim et al., 2007; Asheim & Hansen, 2009). A possible explanation for the findings might be the use of digital means of communication, such as Skype, which allow visual contact. As mentioned in the beginning of this section, a third of the participants reported using Skype for digital interaction. However, as the difference the responses relating to face-to-face versus digital interaction are so small, no conclusions can be drawn.

Asheim et al. (2007) argue that face-to-face communication is essential for the both the exchange of symbolic and synthetic knowledge. According to the qualitative data, face-to-face interaction seems to allow access to intangible and in-depth knowledge. The quantitative data indicates, that the type of intangible knowledge referred to is synthetic. This is reinforced by that participants of the survey interview explained that face-to-face interaction is useful when something needs to be demonstrated instead of writing, or when the knowledge is not that "clear". To illustrate this, one of the participants explained that "Face-to-face can be helpful for areas where knowledge is less black and white" (Participant 13). Another participant related to complex synthetic knowledge, by stating "Face-to-face is better in case there is some new complex tech knowledge" (Participant 2). Relating to the arguments made by previous research that face-to-face interaction is most efficient for the exchange of symbolic knowledge (Asheim et al., 2007), these findings do not provide evidence that such knowledge, in particular, is transferred through face-to-face interaction. Furthermore, it seems like symbolic knowledge is not accessed that well by the company studied in this thesis.

As for the business knowledge base, previous literature was lacking on how such knowledge spills over. However, it was expected that such knowledge spills over mostly through face-to-face interaction, based on its superior capabilities to transfer knowledge (cf. Asheim et al., 2007; Storper & Venables, 2004). Based on the results, business knowledge can be exchanged both via face-to-face and digital interaction, although face-to-face interaction is slightly better for the purpose. As seen in Table 8, slightly more people reported on gaining business knowledge through face-to-face interaction than digital interaction. Regarding knowledge on the market, the difference is quite big,

as 12 people said they could gain such knowledge through face-to-face interaction while only 7 said they could gain such knowledge through digital interaction. Thus, it can be concluded that business knowledge can spill over via both face-to-face and digital interaction, although face-to-face interaction is slightly superior for the purpose.

5.3.2 Industry events, informal meetings & the buzz

The previous results and discussion confirmed, that face-to-face interaction is assessed as more important than digital interaction for the focal company of this study, although digital interaction is also capable of transferring both synthetic and business knowledge. To take a closer look at the aspects of face-to-face interaction, the second part of the survey interview participants were asked about the buzz: how they value industry and informal meetings as well as the location of Elastique in terms of access to knowledge. The results regarding knowledge gained through the buzz and its value are slightly mixed. In the qualitative results, there was very little negative said about industry events and informal meetings. Considering industry events, all but one informant agreed on that they have a positive effect on professional knowledge. The same was true considering informal meetings: Only one person did not find them valuable in terms of access to knowledge. However, the quantitative results revealed, that mostly industry related events provide access to professional knowledge, while the same does not seem to be true regarding informal meetings. Below, the quantitative and qualitative results are compared and analysed in detail.

The quantitative data that was collected on type of knowledge gained through industry events and informal meetings are reported in Table 9. For comparison, industry & career related training was also added to the questionnaire.

Table 9.

Number of participants that can access a specific type of knowledge through industry & career related training, industry related events and informal meetings.

Type of knowledge	Industry & career related training	Industry related events	Informal meetings
Technical knowledge	12	9	2
General know-how	9	15	9
Intangible knowledge related to experience	7	6	1
Creative knowledge	5	6	0
Knowledge specific to the media sector	5	8	2
Knowledge on the creative industries	5	5	4
Knowledge on the market	6	8	2
Other	0	0	3
None	0	0	3

Blue: Synthetic knowledge, **Purple:** Symbolic knowledge, **Green:** Business knowledge

The results of what type of business and synthetic knowledge the participants gain through industry & career related training and industry related events are somewhat comparable. As seen in Table 9, both training and events can provide the participants with synthetic knowledge. Training seems to better provide technical knowledge while events seem to contribute to the creation of general know-how. Contrarily, informal meetings do not seem to provide access to synthetic knowledge that well. Only general-know how appears to be accessed through such meetings, for nine of the participants. These findings indicate, that contrary to the arguments of Asheim et al., (2007) who state that synthetic knowledge does not transfer via the buzz that well because of the informal settings, such knowledge can transfer via events effectively. Furthermore, in addition to events, general know-how can also be transferred via informal meetings. This indicates, that for synthetic knowledge to transfer, formal settings are not always needed.

Regarding symbolic knowledge, both training and events provide very similar results. As seen in Table 9, a third of the participants report that they can gain creative knowledge through events. Thus, career & industry related training as well as industry related events seem to be the superior ways of gaining creative knowledge throughout all of the different aspects of interaction. Still, the proportion of the participants, being only a third, is quite low. Furthermore, no one

expressed that they could gain creative knowledge through informal meetings. Three people said they could gain other types of knowledge through informal meetings, which were not related to work.

Business knowledge is accessed through industry events slightly better than through industry & career related training (see Table 9). However, the numbers are quite low with all being under half of the participants. The qualitative data reinforces that synthetic and business knowledge can be accessed via industry events. Participants referred to technical, intangible as well as industry and sector specific knowledge in their answers. The knowledge base that emerged slightly more prevalently was business knowledge. A reason for the mixed results can be related to Gabhers (2002) description of that actors are not scanning their environment, but instead they are surrounded by a concoction of rumours, impressions, recommendations, trade folklore and strategic information. Thus, different individuals might pick up different types of knowledge depending on their interests and the specific settings. Furthermore, even if previous literature was lacking on how business knowledge transfers, it was expected that the buzz can diffuse such knowledge due to the same above mentioned arguments by Gabhers (2002). Based on the quantitative data, which was reinforced by the qualitative answers, business knowledge seems to be able to transfer via industry events. However, informal events do not seem to transfer such knowledge that well.

Further regarding informal events, the qualitative results somewhat clarify the quantitative results. Through the qualitative responses, two factors supporting that informal events are valuable in terms of knowledge emerged: informal meetings building trust and informal meetings providing access to intangible knowledge. The first factor relates to that many informants agreed on that getting to know people and loosening up could enrich conversations. For example one informant said "Informality takes away the 'now I am working factor' and this can lead to more efficient and rich info conversations" (Participant 16). The second factor, informal meetings for intangible knowledge, relates to that many of the informants thought such meetings are good for sharing experiences, inspiration, gossip and generally more intangible knowledge. For example, one participant said "Yes, as a creative you always get inspired by other things and ideas by others" (Participant 6) when asked if informal interactions are important in terms of developing professional knowledge. Another participant answered the same question by saying, "Yeah, they are important in terms of getting to know people and how they think and handle problems" (Participant 8). Similarly to the results in the previous section, the quantitative results indicate that the intangible knowledge referred to is synthetic, not symbolic, as no one reported gaining such knowledge through informal events through the quantitative data. Out of the participants, nine people reported that they could access

general know-how through industry events. Thus, it seems like it is this type of synthetic knowledge that is referred to in the qualitative responses.

The results of advantages of the location of Elastique in terms to access to knowledge revealed differing opinions on the subject. Approximately a third of the participants thought that the location did not affect their access to professional knowledge. Another third expressed that they believed the proximity of other media companies had a positive effect on their access to knowledge, while the rest thought it benefitted the company more than the individual. Out of the participants who had positive opinion, there were varying perspectives on why the location is beneficial. The factor that emerged as the most common reason, with eight out of the 18 participants, was that it enables access to valuable face-to-face meetings benefiting the projects of the company. For example, one participant commented, "It makes it easier to get the knowledge because it's easier to visit media companies" (Participant 3). The rest of the reasons were quite spread out. Some of the participants reported gaining no advantage out of the location of Elastique. One participant pointed out that "There is not much [advantages related to access to knowledge], but if you ask I think you have the possibility to get access to information" (Participant 13). Unfortunately, most of the participants having negative opinions did not elaborate on the reason.

From broader perspective, the results and analysis in this chapter revealed that there is a general consensus about that both industry events and industry training are valuable for gaining different types of professional knowledge. Neff (2005) argued that geographical proximity may have become even more important than before, because industry related events transfer essential knowledge between companies. Companies relying on mostly digital interaction could miss out on such essential knowledge. The results of this study confirm these arguments. A conclusion that can be drawn based on both the qualitative and quantitative results are that industry events are important for synthetic and business knowledge, and symbolic knowledge to a certain extent. Bathelt (2008) argued, that the buzz allows access to knowledge through flexible means, such as informal meetings and networking events. The empirical findings of this study indicate, that this is only partly true. The overall findings presented in this chapter propose, that industry events can indeed provide industry professionals with valuable knowledge not found elsewhere. For example, according to the descriptive statistics, out of all of the aspects of interaction industry events are the best source for business and symbolic knowledge. However, the results on informal meetings are mixed. Thus, it can be concluded that some level of buzz exists, although it is mostly accessed through industry events. Based on the qualitative results presented in this chapter, informal meetings might also carry some kind of "buzz", but the quantitative results indicated that the buzz created through informal events is not related to professional knowledge. Unfortunately, this study

failed to show *where* industry events and informal meetings take place. Thus, the buzz might be stronger in the "wider" cluster area, referring to the area covering Hilversum, Amsterdam and Utrecht. This is based on that there were differing opinions on how well the location of Elastique actually contributes to the access to knowledge.

6. Conclusion

As stated in the introduction of this thesis, this study aimed to explore how SMEs can utilize their networks in a way that supports them to grow in the dynamic CIs. The study focused on an angle unexplored in the context of the CIs: knowledge spillovers. To reach the aim of this thesis, the study took an in-depth approach through a single case study. The industry and geographical context of the case was studied in detail in order to reveal the specific dynamics of the CIs in the Netherlands. In this concluding chapter, the research question is answered and the main findings are presented. Thereafter, the study is critically reflected upon. As this study took a company perspective, it is seen as appropriate to list the managerial implications of this study. Lastly, avenues for future research are discussed.

6.1 Answering the research question

To be able to answer the main research question of this study, all three levels of analysis have to be considered: the context-, individual- and network level. The main research question of this study asked,

"How can a digital technology SME within the media sphere of the Dutch creative industries utilize their respective networks in order to facilitate and capture knowledge that spills over?"

Four factors relating to the sub-questions, which were discussed in the previous two chapters, have to be addressed: the essential type of knowledge for a company, what type of interaction facilitates such knowledge, what type of networks facilitate interaction that can spill over essential knowledge and how all this fits the greater industry context.

As regards to the type of knowledge that is essential for a digital technology company, the literature that was reviewed argued that a heterogeneous mix of knowledge is essential for success in the media sphere (Preston et al., 2009). Thus, analytical framework was constructed to study different types of knowledge. The framework included three knowledge bases: synthetic, symbolic and business knowledge (Asheim et al., 2007; Preston et al., 2009). The findings indicate that only the synthetic and business knowledge bases are important for a digital technology company. Strong evidence was found especially related to synthetic knowledge, which was widely discussed by the partners of Elastique as well as repeatedly mentioned as the types of knowledge that the employees mainly access through different aspects of interaction. Thus, one of the main findings of this study is that the synthetic knowledge base has a central role in the heterogeneous mix of knowledge for a digital technology company. As for business knowledge, both the partners of Elastique as well as Frank Visser identified it as a type of knowledge important for the media sphere. This indicates, that

such knowledge is important not only for digital media companies, but also for media companies in general.

Interestingly, there was little evidence on the importance of symbolic knowledge. Only one of the partners of Elastique mentioned creative knowledge, and from the survey interview results, it does not seem like such knowledge circulates in the given context. This is interesting because it was expected that symbolic knowledge would be essential for a company positioned in the media sphere, as such knowledge has previously been assessed as particularly important for the CIs (Asheim, Coenen, & Vang, 2007). Preston, Kerr, & Cawley (2009) argued that even if technical, or synthetic, knowledge is important, it is over-emphasized with the cost of giving too little attention for symbolic knowledge. Based on the results of this thesis, it is argued that for digital technology companies, synthetic knowledge is not over-emphasized. However, two factors may have influenced the outcome of these unexpected results regarding symbolic knowledge. First, the current focus of the company, which is more on the software production rather than content creation, calls for synthetic knowledge. Furthermore, symbolic knowledge, being intangible, proved to be hard to measure. Thus, these results should be evaluated with caution, not completely dismissing the importance of the symbolic knowledge base.

Industry related events proved to be very important for knowledge diffusion. Apart from training, such events revealed to be the only way to access symbolic knowledge. However, the number of people who could access creative knowledge was still very low, and such knowledge was, as mentioned, not determined as essential for the company. The results of this study further show that industry related events also provide access to business knowledge especially related to the market. Synthetic knowledge revealed to be the most accessible type of knowledge. Both face-to-face and digital interaction could provide access to such knowledge, although face-to-face was slightly superior. Furthermore, such knowledge can be accessed through industry related events, but according to this thesis, informal meetings do not provide access to synthetic knowledge very well, except for general know-how.

A surprising finding is that informal events provide access to very little professional knowledge overall. This is surprising because according to the theoretical framework, informal meetings offer access to valuable knowledge in the CIs (Asheim et al., 2007; Bathelt, 2008). The quantitative results strongly suggested that informal meetings could provide a low amount of knowledge, while a part of the qualitative dataset indicated that informal meetings could transfer intangible knowledge. However, the type of intangible knowledge seems to be restricted to general-know how. A possible explanation for these findings can be the lack of creative knowledge circulating in the networks of the studied company. According to Asheim et al. (2007) it is especially

such symbolic knowledge that spills over via the buzz. More generally speaking, according to this thesis face-to-face interaction and the buzz can provide access to more complex, intangible knowledge relating to the synthetic and business knowledge bases, while digital interaction acts a complement, especially for communication requiring efficacy and when discussing knowledge that can be codified.

Moving on to discuss networks, co-location of companies revealed to be both common and valuable in the context of the Dutch CIs. Both the first and second parts of the empirical results confirmed these results. The theoretical framework suggested, that despite digital developments, geographical co-location is beneficial for companies in the CIs in terms of knowledge and innovation (Neff, 2005; Pratt, 2013; Scott, 2000). The spatial structure of the Dutch CIs suggests the same: Creative companies tend to cluster in large metropolitan areas. Meetings with customers and collaborators, as well as industry events and informal meetings revealed to be a valuable advantage of co-location. Thus, the value of co-location is strongly linked to the importance of face-to-face interaction, which was assessed as most important for the diffusion of knowledge in general and especially synthetic knowledge, by both the expert and survey interviews. Such face-to-face interaction often facilitates knowledge spillovers (Asheim et al., 2007).

In addition to clusters, networks based on relations also seem beneficial for companies in the CIs. These results were also supported by both the first and second part of the empirical results. According to Nachum & Keeble (2003), a balance between local and global networks is beneficial for companies as this can lead to the access of different types of knowledge. The partners of *Elastique* stressed that such global networks can provide access to valuable business knowledge, which was further assessed as essential for the company. This finding was strengthened by the first part of the empirical findings, which revealed that the Dutch government encourages international collaborations. Furthermore, the results show that networks in the Dutch CIs extend over sectors. This is true especially in the case of digital technology companies in the media sphere, as the media sphere and the ICT sector are heavily interlinked.

The findings relating to what types of networks facilitate knowledge spillovers show that all types of networks seem to have the *potential* for knowledge spillovers. Thus, networks based on co-location, networks based on solely relations and project-based networks facilitate them, even though this does not mean that the actors of the networks utilize the knowledge spillovers in the sense of *capturing* them. The spillover process is not complete before a third party benefits from an activity they did not choose to participate in (Frontier Economics, 2007; Jaffe, 1996). This thesis could not prove or challenge the full process of knowledge spillovers: from the sharing of knowledge to its absorption and finally full capturing in the sense of utilizing the knowledge for commercial

purposes. The first part of the empirical research indicated that knowledge spillovers are tied to people. This strengthens the notion of that interaction is essential for knowledge spillovers in the media sphere, as suggested in the theoretical framework (Achtenhagen & Picard, 2011; Comunian, 2012; Malmberg & Power, 2005; Mattes, 2012). There was a strong indication that knowledge is shared between actors of a network, as the survey interviews revealed that knowledge is accessible through different aspects of interaction, and the partners of Elastique also agreed that there are certain factors enabling knowledge spillovers within their networks. However, some factors *blocking* knowledge spillovers in the media sphere were also found. Thus, it can be concluded that there is a potential for knowledge spillovers, but the knowledge that is shared or absorbed is not necessarily utilized in the sense that it benefits the one who was not the creator.

Summarizing the above discussion, as synthetic and business knowledge revealed to be the most important knowledge bases for a digital technology company, managing the flow of such knowledge inputs is beneficial. Even though some indications were made that companies are careful in sharing knowledge, this study found, that synthetic and business knowledge can be accessed through face-to-face interaction, especially industry related events. Being a part of a cluster, such as Hilversum, but also Amsterdam or Utrecht, facilitates face-to-face interaction, and the buzz to some extent. However, global networks, based on relations, also provide access to valuable knowledge related to the industry and market. These knowledge inputs are a part of the business knowledge base. Thus, based on these notions it is recommended to create both local and global networks. Furthermore, even though there was very little evidence on the importance of symbolic knowledge, its importance should not be dismissed. A company should carefully consider what type of knowledge is beneficial for their strategic goals. Through considering the important knowledge bases, creating a mix of local and global networks and valuing the social character of both, a company has the potential to utilize knowledge spillovers. However, even though this study revealed that at least to some extent, companies do *spill the beans*, meaning that knowledge is shared between companies, the question remains, how well the knowledge is exploited for commercial purposes.

6.2 Critical reflection

This thesis provides insights to knowledge spillovers in the media sphere, which have not been properly conceptualized prior to this study in the sense of how to measure them. The challenge of operationalizing such an abstract subject - especially in the context of the CIs, where a lot of the knowledge was expected to be intangible - proved to be very hard. One of the biggest challenges regarding the operationalization was to distinguish between knowledge spillovers and knowledge sharing. This thesis could not account for the *measurement* of knowledge spillovers, but

rather for the types of knowledge that were shared, and the potential for spillovers. Therefore, the thesis was slightly redirected towards a focus on how interaction within the CIs diffuses knowledge.

The subject of knowledge spillovers in the CIs is new, and little previous research could be found on the subject. Thus, this thesis built on self-constructed analytical frameworks. Such frameworks are in risk of being incomplete, even though the abductive research approach allowed going back and forth between the framework and empirical part, matching theory with reality. The framework for analysing knowledge in the media sphere only included one type of knowledge for the symbolic knowledge base, creative knowledge, while the synthetic and business knowledge bases included three types of knowledge per knowledge base. Thus, it can be argued that the framework was not sufficient. However, mixing qualitative and quantitative methods lessened the risk of an insufficient framework. Through analysing the qualitative data, the quantitative data on symbolic knowledge could be further examined, and no other types of symbolic knowledge emerged from the analysis.

The single case method of this study can be argued to heavily restrict the generalizability of the study. A decision was made to take a methodological approach that could collect in-depth knowledge on an unfamiliar and previously unexplored subject. Thus, it was evaluated as more valuable to limit the study to a smaller scale rather than collect superficial data on a bigger scale, given the limited size of the study. This allowed exploring the dimensions and dynamics related to the CIs, the media sphere and knowledge spillovers. However, the network approach focused on several types of networks of the focal company proved to be quite ambitious. Focusing on one type of network and one type of company could have given room for even more in-depth analysis on knowledge spillovers, something that might be needed to properly conceptualize and operationalize the concept.

Even though these notions limit the scope of the study in relation to measuring knowledge spillovers and generalizability, this thesis contributed to the academic literature through a throughout theoretical conceptualization of the knowledge spillover concept, as well as through revealing the potential for knowledge spillovers in the media sphere. Furthermore, this thesis gave an in-depth insight to the knowledge bases relevant to the media sphere.

6.3 Managerial implications

This thesis raises a number of issues that can be of interest for managers of SMEs in the media sphere. First, relating to networks, something that can be of interest for future strategic planning of SMEs in the media sphere is the importance of international versus local networks. Even though co-location showed to be important, there might be a risk of being too much enclosed in a local “bubble”, in too tight of a cluster in a certain area. This might lead to valuable knowledge being

neglected by the participant of the cluster. Thus, as indicated in this study, the optimal mix of networks is on that includes both local and global links. Such links can facilitate access to valuable international knowledge that is not available locally. For example, in this study it was noted that the Hilversum cluster is relatively closed off from people who are not a part of it. This risks that new innovation and knowledge does not enter the network. Thus, it might not be enough to only enlarge a network city-wise, but country-wise, as it was also suggested that cultural knowledge might be of importance. Also, monitoring the success of media clusters in different parts of the world can give indication on what kind of structure works the best.

As the present thesis has outlined, there are factors blocking knowledge from spilling over in the media sphere. These factors are partly a result of the structure and management of the clusters, but also a result of a fear of sharing knowledge. However, as has been stated, the incorporation of knowledge spillovers can have positive long-time results on innovation and business (Hernández-Acosta, 2014). Thus, the benefits of knowledge sharing, and eventually knowledge spillovers, should be taken into account in the strategic planning. Of course, this is a debatable issue due to the intangible nature of many media products: When is it safe to share knowledge, and when is it not? If crucial knowledge is spilled over, this can lead to losing the ownership of services and products that are not protected. Therefore, an implication of this study for company managers is to consider knowledge spillovers as an opportunity, but to also reflect about their strategic significance in terms of risk.

As for the knowledge bases and what type of knowledge is considered essential, a company should carefully consider their positioning in the CIs, as well as their *preferred* positioning. This thesis studied a digital technology company positioned in the media sphere, even though per policy definitions the company is a part of the creative business services sector or ICT. Furthermore, the company wishes to add a more conceptual part back to their services, and thus it is recommended to carefully think about what type of knowledge can facilitate and support such an addition or transition. As for now, the company relies on mostly synthetic knowledge base. A consideration of knowledge management and emphasis on symbolic knowledge can facilitate opportunities that for now are not in the reach of such a company.

6.4 Future research

Based on the aforementioned limitations a conclusion that can be drawn from the present study is that there is an obvious need for clarification of the knowledge-spillover concept among scholars, industry professionals and policy makers. Thus, the foremost challenge for further research is to develop a model that is capable of identifying knowledge that is spilled over and utilized for commercial purposes by companies in the CIs. As this study took a mostly qualitative approach,

further research could, for instance, explore quantitative approaches to measure knowledge spillovers in the CIs. However, as the concepts in this study are mostly intangible, developing quantitative models is challenging. Thus, another recommendation is to conduct longitudinal case studies. Qualitative longitudinal research could bring some more insight into the effects of knowledge spillovers in the CIs, as the researcher would - in theory - be able to follow the knowledge from its creation to its possible utilization.

Even though this study offered some insights to how knowledge is accessed within clusters, the study is limited to the Hilversum-cluster, but clusters might offer different types of inputs. Hence, future research could broaden the picture of the value of different clusters, for instance through questionnaires aimed at collecting quantitative data on a larger scale. Furthermore, the research topic of knowledge types in the *digital* media sphere per se could be an interesting research topic. This study did not find a lot of evidence on creative knowledge, but this might be a result of the difficulty in operationalizing the intangible concept of symbolic knowledge. Thus, a study testing the findings of this thesis and building on previous theories of knowledge bases in the media sphere could clarify and bring depth to the subject.

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APPENDIX A

Participants of expert- and survey interviews

Table A1.

Description of expert interviews: participants and interview topic, date, place and length

Interviewee	Job function	Interview topic	Date of interview	Place of interview	Length of interview
Bart Robben, 1	Managing director, Elastique	Getting to know the company	2nd of March, 2017	Elastique, Hilversum	1 hour 40 minutes
Frank Visser	Project manager and consultant at Immovator	Context of the thesis - CIs and the media sphere	22nd of May, 2017	Erasmus University Rotterdam, Rotterdam	54 minutes
Bart Robben, 2	Managing director, Elastique	Knowledge, networks and spillovers	24th of May, 2017	Elastique, Hilversum	1 hour
Joris Diederick Lock	Head of tech & development, Elastique	Knowledge, networks and spillovers	24th of May, 2017	Elastique, Hilversum	35 minutes

Note: Two of the participants are the same, Bart Robben. Interviews referenced as Robben 1 and Robben 2 correspondingly.

Table A2.

Participants of survey interviews - anonymous, employees of Elastique

Participant	Job function	Years at the company
Participant 1	Jr. Business developer	<1
Participant 2	Web developer	1
Participant 3	Project manager	4
Participant 4	Concept developed	<1
Participant 5	Android developer	1
Participant 6	Creative/interactive experience designer	7
Participant 7	Backend developer	<1
Participant 8	iOS developer	<1
Participant 9	Partner	8
Participant 10	Intern (concept & deisng)	<1
Participant 11	Concept developer	1

Participant 12	QA Engineer	1
Participant 13	Backend developer	<1
Participant 14	iOS developer	2
Participant 15	Senior Android developer	1
Participant 16	Android developer	1
Participant 17	Intern (iOS developer)	<1

APPENDIX B

Documents used for document analysis

Table B.

Detailed description of documents in document analysis

Title, author, year	Document type	Content & aim	Length
<i>Knowledge & innovation agenda for creative industries 2016-2019.</i> ClickNL. 2015	Research agenda	Discussing challenges & competitiveness of Dutch CI, discussing the role of structured networks (ClickNL) and knowledge infrastructures	60 pages
<i>Creative Industries as a Flywheel.</i> Marlet, G., Rutten, P., & van Oort, F. 2013	Research based report	Examining social and economic added value of the CI, positive external impact of CI and the CI's contribution to innovation	68 pages
<i>Designing a country: creative industries in the Netherlands.</i> Ministry of Education. Culture and Science, 2014	Information booklet	Giving an impression and introduction to the Dutch CI. Describing the history of the industry, it's dynamics, the role of government and most important stakeholders within the CI.	48 pages
<i>Sectoren in beeld - Jaarbericht sectoren 2015: Creatieve industrie.</i> Ministry of Economic Affairs. (2015).	Annual report	Report on developments in the CI as well as discussion on the networked creative economy.	4 pages
<i>The Creative Industry Illustrated.</i> Ministry of Education, Culture, and Science, Ministry of Economic Affairs. 2015.	Open letter	Outlining the developments in the CI, challenges and risks, as well as collaboration between government, entrepreneurs and other stakeholders within the CI	Internet resource
<i>Creative value: Culture and economy policy paper</i> Ministry of Economic	Policy paper	Clarifying the Dutch CI, it's sectors and it's functions.	57 pages

Affairs, Ministry of
Education, Culture and
Science. 2009

<i>Our creative potential: Paper on culture and economy</i> (No. 06DC01). Ministry of Economic Affairs, Ministry of Education, Culture and Science. 2009.	Policy paper	Giving a robust explanation of the relationship between culture and the economy.	51 pages
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<i>Investeer met ons in de Digitale Creatieve Industrie: Using Dutch creativity to inspire the world.</i> Digital Creativity First. 2017.	Open letter	Discussing the emergence of a digital sector in the CI, as well as its importance. Suggestions for policymakers.	Internet resource
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<i>Monitor creatieve industrie.</i> Rutten, P., & Koops, O. 2017.	Research based report	Reporting growth, developments, trends and added value of the Dutch CI.	106 pages
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References for analysed documents:

ClickNL (2015). *Knowledge & innovation agenda for creative industries 2016-2019*. ClickNL. Retrieved from: http://www.clicknl.nl/wp-content/uploads/2015/10/CLICKNL_KIA-2016-2019-EN.pdf

Marlet, A. V. G. G., Rutten, P., & van Oort, F. (2013). *Creative Industries as a Flywheel*. Amsterdam Innovation Motor / Amsterdam Economic Board. Retrieved from: <http://www.eciaplatform.eu/wp-content/uploads/2013/06/Creative-Industries-as-a-Flywheel.pdf>

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APPENDIX C

Interview guide semi-structured interview with Frank Visser - Context

Introduction

- > Summary of thesis topic
- > Professional background
- > Time working in the CIs

Definition & dynamics of the creative industries

- > Description of the CIs
- > Description of media sphere
- > Differences to other sectors/distinctive characteristics
- > How are the creative industries different from other industrial sectors? What are their distinctive characters?
- > Differences between definitions and sectors classification
- > Recent developments in the CIs
- > Challenges of the CIs

Digital developments

- > Relationship between ICT and CIs, especially media sphere
- > Effect of digital development on the CIs
- > Future of the CIs
- > Merging/emerging sectors

Knowledge infrastructure & spillovers

- > Knowledge important for the media sphere
- > The relevance of knowledge spillovers
- > How does knowledge spill over

Networks

- > Advantages & disadvantages of clustering
- > Talk about face-to-face interaction, the buzz & digitized networking
- > Digital developments & clustering
- > Networks based on social relationships and common interests

> Future of networks

Briefly check that these concepts have been discussed:

Creative industries - definitions

Media sphere - ICT

Knowledge spillovers

Networks - geographical & relational

APPENDIX D

Interview guide for structured interview (Elastique)

Company Background

1. Can you tell me about the founding of Elastique - about the founders and first employees?
2. How fast have you grown to where you are now?
3. What do you consider the biggest "milestones" in the company's history? For example, new product-market decisions, entry into new businesses.
4. What do you consider the crucial factors for the company's success?
5. If you have one, what is your current mission statement?
6. What is your value proposition?

Services

7. How have your services developed from where you started to where you are now?
8. What makes your services stand out?
9. What do you mean by helping clients tell their story both online and *offline*?
10. Which services are the "most popular" among your customers?
11. Do you create the content for the websites and apps? If not, who does it?

Customers

12. Why did you decide to focus on the public broadcasting industry?
13. Out of your primary target market, who are your biggest customers?
 14. What kind of influence would you say these customers have on you?
15. How many projects do you work on simultaneously?
16. Who are your current customers?
17. Can you estimate how many clients you've had in total?
18. You also have customers from the commercial broadcasting industry, who are these?
 19. What kind of influence would you say these customers have on you?
20. Do you also provide services for companies outside of the public/commercial broadcast industry?
 21. Who are these companies?
 22. What kind of influence would you say these customers have on you?

Employees & Company culture

23. Does all employees work at the Melkfabriek?

- 24. If not, where do the others work?
- 25. In addition to your full-time employees, do you employ contractors/freelancers?
- 28. How many interns do you host per year?
- 30. How would you describe your company's culture?
- 31. What does your working method look like?

Strengths & Opportunities

- 32. What would you consider Elastiques foremost strengths?
- 33. What would you consider Elastiques foremost opportunities?
- 34. What are your future visions for the company in terms of growth?
- 35. Do you have future visions on expanding your target market?
 - 36. To which industry/industries?

Challenges & Weaknesses

- 37. What do you consider the biggest internal challenges for your company today?
- 38. What do you consider the biggest external challenges for your company today?

Competitors

- 39. Who do you consider your biggest competitors?
- 40. Could you name some of your direct competitors (has the same services as you)?
- 41. What kind of influence would you say each of these have on you?
- 42. Could you name some of your indirect competitors (alternative services)?
- 43. What kind of influence would you say each of these have on you?
- 44. How do you differentiate from your competitors?

Community

- 45. How long have you been part of Hilversum Media Campus?
 - 46. Why did you decide to join?
 - 47. How much contact do you have with HMC and the companies within it?
 - 48. Which specific companies do you have contact with?
 - 49. What kind of collaboration do you have with HMC and the companies within it?
 - 50. What kind of influence do you consider HMC as a whole to have on you?

51. Which companies from HMC do you consider having the biggest influence on your company?
52. Do you consider the Melkfabriek a kind of a business network?
53. Do you have contact and collaboration with other companies within it?
54. Which companies?
55. What kind of collaboration?
56. What kind of influence do the companies have on you?
57. Are you part of other kinds of business networks?
58. What networks?
59. How long have you been a part of them?
60. How much contact do you have with these networks?
61. What kind of collaboration do you have with these networks?
62. How do these networks & companies within them influence you?

Government & Regulatory body

63. What kind of contact do you have with CVDM?
64. Do they provide you with support?
65. What kind of influence do they have on you?
66. How much are you in contact with other governmental institutions?
67. Which ones?
68. What kind of influence do they have on you?
69. How much would you estimate policies and governmental regulations affect your business?

Educational institutions & Organisations

70. Which educational institutions do you have collaborations with?
71. Do you have collaboration with them beyond interns?
72. What kind of influence do they have on you?
73. Do you have collaborations with research organisations, such as NWO?
74. Do you have collaborations with other organisations within the creative industries? For example the Dutch Creative Council or CLICK NL.
75. What kind of influence do they have on you?

Other collaborations & stakeholders

76. Can you think of some other stakeholders you think would be important to mention? For example opinion leaders, suppliers, media.

77. What is their influence on you?

78. Do you do some kind of collaboration with them? If yes, what kind?

79. If you would have to mention five stakeholders that you think has the biggest influence on your company, which would they be?

80. Additional comments/something important about the company that was not mentioned?

APPENDIX E

Interview guide semi-structured interview with Elastique - network & individual level

Intro

- > Introduction to thesis
- > Time at the company and job function

Knowledge in the media sphere

- > Knowledge management
- > Essential knowledge for the company
- > Lacking knowledge
- > Familiarity with knowledge spillovers
- > Knowledge spillovers in the media sphere
- > Types of knowledge that can spill over

Networks - Clusters

- > Familiarity with the term
- > Reasons for clustering
- > Advantages and disadvantages of clustering
- > Knowledge spillovers in clusters
- > Access to essential/lacking knowledge in clusters
- > Sociality of cluster

Networks - Relational proximity

- > Networks in a wider geographical area
- > International networks
- > Knowledge spillovers between distant collaborators
- > Knowledge accessed through wider networks

Digital developments

- > Effects of digital developments on the company
- > Effects of digital developments on clustering
- > Effects of digital developments on interaction
- > Effects of digital developments on wider networks (international)

- > Knowledge spillovers via digital versus face-to-face interaction
- > Digital developments have made communicating and sharing knowledge over distances easier.

Briefly check that these concepts have been discussed

- > Knowledge bases: synthetic, symbolic, business
- > Knowledge spillovers
- > Geographical & relational proximity
- > The buzz
- > Face-to-face interaction
- > Digital interaction

APPENDIX F

Survey interview and detailed operationalization

The survey interview was anonymous, however some demographics were asked about the respondents. The respondents were asked to report their position at the Elastique, how long they've worked there and about their education.

The interview survey was divided into three main parts: demographics, face-to-face versus digital interaction and the buzz. The concepts operationalized through the survey were, knowledge spillovers, knowledge in the media sphere, face-to-face interaction, the buzz and digital interaction. First, the operationalization that was done through qualitative, open-ended, questions is presented.

Knowledge spillovers, being conceptually hard to define and understand, were not explicitly operationalized in the survey interview. Instead, they were operationalized through the interpretation of the qualitative data. It was observed if the respondents mentioned using knowledge that was accessed, as well as what kind of knowledge circulate in the industry.

Face-to-face interaction, digital interaction and the buzz were operationalized through dividing the interview survey according to these aspects of interaction and asking qualitative questions about their strengths and weaknesses. The first part of the survey covered face-to-face and digital interaction. For example, respondents were asked in what kind of situations they prefer face-to-face interaction to digital means and vice versa, as well as if there is something face-to-face interaction can offer, that digital interaction cannot, in terms of knowledge.

The second part of the survey focused on the buzz. The buzz occurs at, for example, informal meetings and industry events. Thus, the buzz was operationalized through asking the respondents questions about how they value such meetings and events. For example, the respondents were asked if they think industry events are important in terms of developing professional knowledge. Furthermore, the buzz was operationalized through questions about the benefits of the location of Elastique. The respondents were asked in what way they think being located close to other companies within the media sphere affects access to knowledge specific to the digital media industry, and in what way they location of Elastique affects access to professional networks.

Next, the operationalization through quantitative methods is presented. The variable "knowledge in the media" sphere was operationalized using the analytical framework established in chapter 2.4 of this thesis. Thus, questions about the type of knowledge the respondents gain out of interaction were asked. The question was asked in relation to all three of the aspects of interaction: face-to-face, digital and the buzz. The respondents were given options according to the analytical framework in chapter 2.4. Thus, for the synthetic knowledge base, the options were: technical

knowledge, general know-how and intangible knowledge related to experience. As for the symbolic knowledge base, the option was creative knowledge. For the business knowledge base, the options were knowledge specific to the sector, knowledge specific to the industries, and knowledge on the market. The respondents could choose multiple options. Furthermore, the options "other" and "none" were included. As for the "other" option, during the cleaning of the data, it was noticed that many of the answers were, in fact, business knowledge. Thus, these were integrated to the final data on business knowledge. Quantitative data was also collected on how often the respondents interact with other industry professionals, in order to assess the relevance. Below, the full survey interview is presented.

Q1 Thank you for participating in this survey. This survey is conducted as part of my master's thesis at Erasmus University Rotterdam. I am writing the thesis in collaboration with Elastique. The research studies networks & knowledge spillovers in the media sphere of the Dutch creative industries. The personal information you provide is kept strictly confidential, and the findings of this survey will be used solely for research purposes. Hence, your anonymity is guaranteed. Your participation is completely voluntary and you can quit at any time. Many of the questions in this survey are "qualitative", meaning that there are not set options for answering. Please review all the questions before answering, and take your time. There are no right and or wrong answers. The estimated time to finish the survey is 15 minutes. If you want to add something during your progress, you can go back in the survey during your participation. You can also save your progress to return to the questionnaire later. If you have any questions, please don't hesitate to contact me via email: 454661@student.eur.nl

I understand the above and agree in participating in this survey

Q2 First, I would like to know a little bit about your professional background...What is your current position at Elastique?

Q3 For how many years have you been working at Elastique?

Q4 Which year did you graduate from your highest completed degree of education?

Q5 Do you have a completed university degree?

- Yes (1)
- No (2)

Display This Question:

If Do you have a completed university degree? Yes Is Selected

Q6 From which field of study is your highest completed university degree?

Q7 This part of the questionnaire consists of a set of questions relating to knowledge transfer through interaction with industry professionals.

Industry professionals refer to people working in the creative industries and related sectors.

Face-to-face interaction refers to meeting people in person.

Interaction through digital means refers to connections made through email, social networks, messaging apps, work-oriented digital platforms, Skype or similar. Knowledge in this survey is related to knowledge that you experience as useful for your professional career. Examples of professional knowledge are technical knowledge, general know-how, intangible knowledge relating to creativity, intangible knowledge relating to experience in the industries, knowledge specific to the media sector, knowledge on the creative industries and knowledge on the market. Of course, knowledge is not limited to these examples, and hence you are encouraged to describe and define the kind of knowledge you personally gain out of face-to-face and digital interactions.

Q8 First, you are presented with questions about face-to-face interaction. On average, often do you interact face-to-face with industry professionals from other companies or organisations than Elastique?

- Almost every day (1)
- 5-4 days a week (2)
- 2-3 days a week (3)
- Once a week (4)
- Less than once a week (5)

Q9 What type of knowledge do you feel you can gain out of face-to-face interaction with industry professionals? (You can select several types)

- Technical knowledge (1)
- General know-how (2)
- Intangible knowledge relating to creativity (3)
- Intangible knowledge relating to experience (4)
- Knowledge specific to the media sector (5)
- Knowledge on the creative industries (6)
- Knowledge on the market (7)
- Other (8)
- None (9)

Display This Question:

If What type of knowledge do you feel you can gain out of face-to-face interaction with industry professionals? (You can select several types) Other Is Selected

Q10 Please describe what "other" type of knowledge you can gain out of face-to-face interaction with industry professionals.

Q11 Next, let's move to digital interaction... On average, how often do you interact with industry professionals from companies or organisations other than Elastique through digital means?

- Almost every day (1)
- 4-5 days a week (2)
- 2-3 days a week (3)
- Once a week (4)
- Less than once a week (5)

Q12 What kind of digital methods do you use for work related interactions?

- Email (1)
- Social networks (2)
- Messaging apps (3)
- Work-oriented digital platforms (4)
- Skype (5)
- Other (6) _____

Q13 What type of knowledge do you feel you can gain through digital interaction? (You can select several types)

- Technical knowledge (1)
- General know-how (2)
- Intangible knowledge relating to creativity (3)
- Intangible knowledge relating to experience (4)
- Knowledge specific to the media sector (5)
- Knowledge on the creative industries (6)
- Knowledge on the market (7)
- Other (8)
- None (9)

Display This Question:

If What type of knowledge do you feel you can gain through digital interaction? (You can select seve... Other Is Selected

Q14 Please describe what "other" type of knowledge you can gain out of digital interaction with industry professionals.

Q15 The next questions relate to how face-to-face interaction compares to digital interaction... How important do you think face-to-face interaction with industry professionals is compared to digital interaction with industry professionals for developing your professional knowledge? Why?

Q16 In what kind of situations do you prefer face-to-face interaction over digital means and vice versa?

Q17 In terms of knowledge, do you think there is something face-to-face interaction can offer, that digital interaction cannot?

Yes (1)

No (2)

Display This Question:

If In terms of knowledge, do you think there is something face-to-face interaction can offer, that d...
Yes Is Selected

Q18 In terms of knowledge, what can face-to-face interaction offer, that digital interaction cannot?

Display This Question:

If In terms of knowledge, do you think there is something face-to-face interaction can offer, that d...
Yes Is Selected

Q19 In terms of knowledge, why can interaction through digital means not offer the same?

Q20 In terms of knowledge, do you think there is something digital interaction can offer, that face-to-face interaction cannot?

Yes (1)

No (2)

Display This Question:

If In terms of knowledge, do you think there is something digital interaction can offer, that face-t...
Yes Is Selected:

Q21 In terms of knowledge, what can digital interaction offer, that face-to-face interaction cannot?

Display This Question:

If In terms of knowledge, do you think there is something digital interaction can offer, that face-t...
Yes Is Selected

Q22 In terms of knowledge, why can face-to-face interaction not offer the same?

Q23 In this third part of the questionnaire, you are asked more about how you interact with other industry professionals and the benefits of Elastique's geographical location.

Q24 On average, how often do you attend industry- and career-related training? Examples of such are workshops, career development events, seminars and similar.

- At least once a week (1)
- At least once a month (2)
- At least once every other month (3)
- At least once every 6 months (4)
- At least once a year (5)
- Less than once a year (6)
- Never (7)

Condition: Never Is Selected. Skip To: On average, how often do you attend i....

Q25 What type of knowledge do you gain from industry- and career-related training? (You can select several types)

- Technical knowledge (1)
- General know-how (2)
- Intangible knowledge relating to creativity (3)
- Intangible knowledge relating to experience (4)
- Knowledge specific to the media sector (5)
- Knowledge specific to the creative industries (6)
- Knowledge specific on the market (7)
- Other (8)
- None (9)

Display This Question:

If What type of knowledge do you gain from these industry related events? (You can select several ty... Other Is Selected:

Q26 Please describe what "other" type of knowledge you can gain out of industry- and career-related training.

Q27 On average, how often do you attend industry related events (for example networking opportunities)?

- At least once a week (1)
- At least once a month (2)
- At least once every other month (3)
- At least once every 6 months (4)
- At least once a year (5)
- Less than once a year (6)
- Never (7)

Condition: Never Is Selected. Skip To: Do you think networking events are im....

Q28 What type of knowledge do you gain from these industry related events? (You can select several types)

- Technical knowledge (1)
- General know-how (2)
- Intangible knowledge relating to creativity (3)
- Intangible knowledge relating to experience (4)
- Knowledge specific to the media sector (5)
- Knowledge specific to the creative industries (6)
- Knowledge specific on the market (7)
- Other (8)
- None (9)

Display This Question:

If What type of knowledge do you gain from these industry related events? (You can select several ty... Other Is Selected

Q29 Please describe what "other" type of knowledge you can gain out of networking events.

Q30 Do you think industry events are important in terms of developing your professional knowledge? Why or why not?

Q31 Do you ever meet up with people from the industry at more informal places, such as at the bar or during a lunch?

- Yes (1)
- No (2)

Display This Question:

If Do you ever meet up with people from the industry at more informal places, such as at the bar or... Yes Is Selected

Q32 What type of knowledge do you gain from this kind of informal interaction with people from the industry? (You can select several types)

- Technical knowledge (1)
- General know-how (2)
- Intangible knowledge relating to creativity (3)
- Intangible knowledge relating to experience (4)
- Knowledge specific to the media sector (5)
- Knowledge specific to the creative industries (6)
- Knowledge specific on the market (7)
- Other (8)
- None (9)

Display This Question:

If What type of knowledge do you gain from this kind of informal interaction with people from the in... Other Is Selected

Q33 Please describe what "other" type of knowledge you can gain out of informal interaction with industry professionals.

Q34 Do you think informal interactions are important in terms of developing your professional knowledge? Why or why not?

Q35 In what way do you think being located close to other companies within the media sphere affects your access to knowledge specific to the digital media industry?

Q36 In what way do you think the location of Elastique affects your access to professional networks?

APPENDIX G

Coding tables

Table E1.

Coding table for analysis of data of industry & local context (document analysis & expert interview)

Open codes	Axial codes	Selective codes
Definitions of CIs; significance of CIs; sub-sectors;	Definitions of the CIs	Definitions and their challenges
Creative class; creative occupations; critical definitions; definition problems; definition differences;	Challenges in defining the CIs	
Media sphere; media sector	Definitions of media sphere	
Developments in the CIs; digital development being positive; digital developments making a change; digital developments creating new services; digitization transforming sectors; ICT boosting CIs; crossovers between CIs and ICT; cross-media; new media; media+ict;	-	Sectors merging and emerging
Dynamics of the CIs; interconnected companies; network interdependence interconnected people; embeddedness; crossovers; downscaling due to network;	Company interconnectedness	Networked character of the CIs
	Industry interconnectedness	
	Sectors interconnectedness	
Network structures; media clusters; digital networks; informal networks; structured networks; relational networks; network advantages; networks disadvantages;	Networks: geography	Networked character of the CIs
	Networks: relations	
	Networks: international	
Knowledge; cross-fertilization; skills being tied to people; knowledge sharing; knowledge spillovers crossing industries; intra-industry spillovers; inter-industry spillovers; knowledge being tied to networks; sectors acting as intermediaries; industry needing	Knowledge being tied to people	Knowledge infrastructure of the Dutch CIs
	Knowledge infrastructure needing improvement	
	Digital-media	

research; research institutions; knowledge infrastructure		
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Table E2.

Coding table for analysis of data on networks level (Expert interviews with Elastique)

Open codes	Axial codes	Selective codes
Amsterdam cluster; bigger clusters; randstad; cluster definitions; cluster differences; geographical clustering; International networks; project based networks;	Co-location based clustering	Types of networks
	Wider networks	
	Project-based networks	
Rumours within clusters; the buzz;	Buzzing within networks	Co-location advantages
clusters enabling face-to-face meetings; having clients nearby; quick access to information;	Co-location enabling meetings	
Clusters not easily accessible; clusters not open for everybody; cluster in-crowd; closed clustering; inside information; being stuck with same type of clients	Clusters being closed networks	Co-location disadvantages
	cluster disadvantages; clustering bubble; hard to find new types of clients;	
digital communication forming networks; making distances smaller; advantages of digital developments; spillovers via digital interaction; digital interaction; Knowledge spilling over distances;	-	Digital developments enabling knowledge diffusion over distances
need for face-to-face meetings; enabling business knowledge spillovers; enabling digital knowledge spillovers; enabling tech spillovers; feedback communication;	Factors enabling knowledge spillovers	Factors enabling knowledge spillovers
	Communication for technical knowledge; communication important for knowledge;	

importance of face-to-face meetings		
Problems with knowledge spillovers; fear of knowledge spillovers; no knowledge sharing; knowledge not spilling over; spillovers tied to people; competition between clusters; clusters lacking people; problem with digital spillovers	-	Factors blocking knowledge spillovers
Need for international ties; need for diversified networks; problems with international networks; need for cultural knowledge; need for diversified knowledge; need for international knowledge; local industry knowledge; global industry knowledge;	Diversified network types enabling balanced local-global knowledge diffusion	Value of diversified network types
Need for business knowledge; organizational knowledge; need for legal knowledge; need for industry knowledge; industry leader knowledge need for technical knowledge; experience; bridging knowledge and ideas; Learning by doing; creative problem solving; Intangible knowledge and experience; experience knowledge; communication enabling intangible knowledge;	Need for business knowledge	Synthetic and business knowledge bases being essential
	Need for technical knowledge	
	Need for experience-related intangible knowledge	
Lack of business knowledge; lack of technical knowledge	-	Knowledge gaps
Networking for knowledge; knowledge through internet;		

Table E3.

Coding table for analysis of data on individual level (survey interviews)

Open codes	Axial codes	Selective codes
FTF allowing use of all senses; FTF allowing visuals; FTF allowing personality; FTF allowing emotions; FTF being realtime	FTF allowing use mind and body	FTF allowing complex communication techniques
FTF allowing feedback interaction; FTF being inclusive; FTF allowing explanation; FTF easing understanding; FTF for fast	FTF allowing complex communication techniques	

reactions		
FTF revealing context; FTF sparking inspiration; FTF for intangible knowledge; FTF for complex issues; FTF for detailed knowledge;	FTF for capturing intangible knowledge	FTF for capturing intangible knowledge
	FTF for capturing in-depth knowledge	
FTF lacking efficacy; FTF lacking scanning opportunity; FTF lacking the power of the internet; FTF being costly	-	Weaknesses of FTF interaction
Digital for codified knowledge; digital interaction for specified knowledge; allows going back in time; digital allows saving; digital holds power of the internet; digital allow large co-operations; digital for confirmation; digital for being fast; digital for short messages;	Digital for codified knowledge	Factors supporting the importance of digital interaction
	Digital allowing backups	
	Digital being fast and efficient	
Digital lacking focus; digital lacking real time element; digital being slow; digital risks misinterpretation; digital lacking emotions; Digital lacking use of sense; digital lacking feedback; digital lacking personality; digital equipment creates extra barrier;	Digital prone for misunderstandings	Weaknesses of digital interaction
	Digital creating a barrier for use of full communication techniques	
Networking for business knowledge; networking for general knowledge; networking for industry knowledge; networking for intangible knowledge; networking for marketing knowledge; networking for technical knowledge; networking for experience; networking for	Industry events being beneficial for varied knowledge types	Factors supporting the significance of clustering and the buzz within it
	Clustering enabling access to knowledge	

<p>inspiration; cluster enabling access to diversified knowledge; clustering enabling access to networks; clustering enabling FTF meetings; clustering for projects;</p>	<p>Clustering enabling access to valuable and professional FTF meetings</p>	
<p>Informal meetings for knowledge; informal meetings for trust; informal meetings for gossip; informal meetings for inspiration; informal meetings for intangible knowledge; informal meetings for sharing experience</p>	<p>Informal meeting for building trust</p>	<p>Value of informal meetings</p>
	<p>Informal meetings for intangible knowledge and inspiration</p>	
<p>Cluster benefits dependent on company type; clustering not benefitting the individual; benefits of buzz dependent on individual; no buzz in clusters; clustering insignificant; clustering not enabling access to knowledge; companies not cooperating;</p>	<p>-</p>	<p>Factors opposing clustering and the significance of the buzz</p>