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The Role of Communicators in Innovation Clusters: Initial Evidence from the Case Studies Munich and Cambridge

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Abstract

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Innovation clusters continue to be an important focus of economic development policies in many nations. Leading innovation clusters demonstrate that regional concentration strengthens the innovative capability and can lead to successful competitiveness on a global level. The development of innovation clusters has therefore received much academic attention. Past research has identified specialized supply and demand (Marshall 1920), collaboration and competition (Porter 2000) and the infrastructure and mobility of goods (Krugman 1994) as drivers for clustering effects. However public communication within the cluster - and, specifically, the role of key communicators - in underpinning successful cluster development has received almost no academic attention. This points out to a research gap, which merits attention in order to enrich the academic understanding of how innovation clusters develop successfully. The interdisciplinary analysis of cluster theories and communication studies reveals significant interrelations: Marshall (1920) introduces the idea of knowledge-spillovers between individuals, Porter (2000) discusses knowledge about new innovations and early perceptions of entrepreneurial opportunities due to close relationships and Krugman's notion of centripetal forces can be understood as external economies which are based on shared information. Focusing on the sociological cluster theories, the influence of communication studies gets even more evident. Network Theory promotes the impact of knowledge diffusion due to relationships (Granovetter 1937), Knowledge Based View stresses the

importance of 'tacit knowledge' in networks (Asheim & Gertler 2006) and Gatekeeper Studies focus on the transfer or information between social groups (Lezagic, Longhi & Thomas 2008). The interdisciplinary theoretical analysis therefore suggests that communicators play an important role in innovation clusters.

Drawing upon classic communicator studies, a framework has been created to investigate the role of communicators in innovation clusters. The framework suggests that there are four influence-levels that shape and impact the role of communications in innovation clusters: the Individual Level, the Organizational Level, the Cluster Level and the Context. These levels establish the foundation for a qualitative interview guideline with key communicators, which have been identified by a primarily research of the two case studies Cambridge and Munich. The overall 23 qualitative in-depth interviews have been examined based on the structure of deductive categories and codes deriving from the theoretical levels and inductive categories and codes resulting from the empirical findings.

The results suggest that communicators play a significant role in clusters: On the Individual Level, key communicators perceive their work as very important for the success of the innovation clusters. Information sharing, as one of their main work aims, pursues the connection and representation of their institutions and the cluster in general. The Organizational Level reveals the diverse professional positions of communicators. Not only 'classic' professions such as journalists or PR consultants are relevant, but also entrepreneurs, investment angels and academics. The Cluster Level highlights the differences of the case studies: while Cambridge communicators acknowledge a common presentation of the cluster, Munich communicators position their organizations rather in a national and international environment. The Context Level offers insight to understand these differences. Historical, economical and political factors influenced significantly the clusters' developments. The Cambridge cluster evolved without significant external factors, which lead to a closely networked community. In contrast, the Munich cluster was shaped by many external forces, such as the financial support by the German federal and Bavarian state government - however only for single institutions and not regions. Each level provides insight to the role of communicators and explains their diversity. Based on these results, the discussion will examine how the identified roles of the communicators reflect back on the development of innovation clusters.

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Abstract

Innovation clusters continue to be an important focus of economic development and thus receive much academic attention. Previous research identified various factors as influential drivers for the successful development of clusters, such as supply and demand, collaboration and competition and the infrastructure and mobility of goods. While economic and sociological cluster theories implicitly indicate the importance of public communication in terms of knowledge gathering and sharing and creating networks inside and outside the cluster, the role of communicators, i.e. journalists and public relations consultants, stays implicit. This paper presents initial evidence of two case studies Munich and Cambridge in analysing the role of communicators in innovation clusters. Drawing on established models of communication studies, a conceptual framework has been created to analyse the role of communicators empirically, suggesting an Individual Level, an Organizational Level, a Cluster Level and Context. Based on the insight of 23 in-depth interviews with relevant communicators from both case studies, the findings suggest that Munich communicators neither agree with the idea of a Munich cluster and nor consider themselves as a part of it. In contrast, Cambridge communicators show a clear vision of the cluster and identify strongly as a member. This major difference influences the role of communicators in the two clusters significantly. While the empirical findings provide descriptive findings, the Context offers explanation by referring to the historical, social, political and economic reality of the clusters, which has proven to be highly relevant for Munich and Cambridge. The findings provide valuable contributions to reassess the conceptual framework and broaden the literature review.

1 Introduction

Innovation clusters continue to be an important focus of economic development policies in many nations (Uyarra & Ramlogan 2012). Leading innovation clusters demonstrate that regional concentration strengthens the innovative capability and can lead to successful competitiveness on a global level. However the successful creation of clusters still presents “(...) a unique challenge to policy makers” as efforts to do so regularly fail (Clark 2013: 6). The development of innovation clusters has therefore received much academic (Porter 1998; Karlsson 2008) and policymaker (European Commission 2008; OECD 2012) attention. While past research has examined specialized supply and demand, collaboration and competition, the infrastructure and mobility of goods as crucial drivers for clustering effects the role of communicators in underpinning successful cluster development has received almost no academic attention.

This paper provides initial insight to the role of communicators in innovation clusters. In the following section, the literature review links cluster theories with communication studies to highlight implicit relations between the two research fields. Based on established communicators models and the insights of the literature review, a conceptual framework has been created suggesting an *Individual Level*, an *Organizational Level*, a *Cluster Level* and *Context* to analyse the role of communicators in innovation clusters empirically. The paper then presents two case studies, the innovation clusters in Munich and Cambridge, which present contrasting roles of communicators. Each case is analysed with the help of the conceptual framework providing descriptive and explanatory contributions to the research field.

2. Literature Review

2.1 Economic and Sociological Cluster Theories

The geography of innovation shows a clustered economic landscape, characterized by a regional concentration of innovative capability (Asheim & Gertler 2006: 291). Established cluster theories discussed this phenomenon from different perspectives and identified factors, which support the local agglomeration. Marshall (1890, 1920) introduces the notion of external economies, an environment characterized by skilled labour, specialized goods, face-to-face contact and trust, which enables spill-overs and sparks innovative activity. Porter (1990, 1998, 2000) highlights the importance of external value and identifies supply and demand conditions, competition and collaboration and the context of the firm as most important for innovative capability. Krugman (1994, 1998) focuses on the dynamics of resource allocation across activities and location by identifying tangible and intangible goods that shape a complex economic environment. The research by Marshall, Porter and Krugman established a strong foundation to understand the dynamics of clustering-effects and influenced the academic perspective on how innovation takes places. While

these papers have mostly been discussed in terms of their economic contribution, they also imply the importance of sociological aspects. Discussing externalities, Marshall, Porter and Krugman refer to information gathering, knowledge sharing and the resulting relations between the actors (as summarized in Table 2.1).

Economic Cluster Theories	Role of communication
Marshall (1890, 1920)	Marshall introduces the idea of knowledge-spillover, which is based on the face-to-face contact of the people. According to Marshall, individuals move from firm to firm and exchange knowledge and ideas.
Porter (1990, 1998, 2000)	In his Diamond-Model, Porter discusses knowledge about new innovations and early perceptions of new possibilities due to the close relationships between the actors.
Krugman (1994, 1998)	Krugman's notion of centripetal forces can be understood as external economies, which are based on relationships and shared information.

Table 2.1: The Role of Communication in Economic Cluster Theories

The sociological factors, as shown in Table 2.1, are kept implicit within in the economic theories and are not explained in depth. This leads to a blurred understanding of sociological externalities based on interrelations, common knowledge and information spillovers. Focusing on interrelations within a network and the resulting information gathering and sharing processes, sociological theories complement the economic perspective on cluster dynamics. Network Theory, Knowledge-Based View and Gatekeeper Studies provide valuable insight to the research field as shown in Table 2.2.

Sociological Cluster Theories	Author	Role of communication
Network Theory	Granovetter (1937)	Close relationships that are characterized by strong ties are more likely to share knowledge than those who communicate infrequently or who are not emotionally attached. Weak ties, i.e. acquaintances, support the diffusion of knowledge, the creation of new opportunities and the emergence of new collaborations.
	Burt (1992, 2001)	Structural holes define potential connections between units that are not connected and lead to non-redundant information, as the sources are more additive than overlapping.
Knowledge Based View	Polanyi (1958)	Tacit knowledge can be understood as "not codified" knowledge. As it defies easy articulation or codification, it is difficult to exchange over long distances.
	Asheim & Gertler (2006)	Tacit knowledge depends on shared conventions and norms that have been fostered by a common institutional environment and relies on a mutual language and communication codes. Thus it is transferred through face-to-face interactions between individuals
Gatekeeper Studies	Dang, Mortara, Thomson & Minshall	To access tacit knowledge and context-laden information, "listening posts" are created in order to

	(2011)	build channels inside and outside the cluster.
	Lezagic, Longhi & Thomas (2008)	Gatekeepers are characterized by three functions: 1. To search information from external sources 2. To transcode and translate the meaning of information. 3. To transfer information and to disseminate accumulated and local knowledge

Table 2.2: The Role of Communication in Sociological Cluster Theories

Both economic and sociological cluster theories highlight the importance of networking, knowledge gathering and information sharing. While economic theories imply such action as given processes, sociological theories acknowledge a deliberate and organized way of connecting and communicating. Gatekeeper studies point to the importance of specific actors managing information in order to build relationships inside and outside the cluster. Communication studies have a long tradition in analysing actors who pursue these aims on a professional basis, but have never been applied to the study of clusters. This discipline opens new perspectives of analysing and understanding cluster processes. Thus the next section will introduce the different role of communicators as discussed in communication studies.

2.2 Communication studies

Originally communication studies focused on journalism, which has been defined as public mass communication that targets a broad and heterogeneous audience in order to inform (Pürer 2003: 75). Over the last century, corporate communication, especially public relations, gained a lot of academic attention. Public relations can be also understood as public communication but addresses defined stakeholders to pursue specific messages (Fröhlich 2008: 95). In their interplay, journalism and public relations target a broad audience and thus shape and influence the public opinion.

Journalists

The understanding of the journalists' role has been changing over time in academic research (Pürer 1997). Based on the News-Bias studies, early research regarded journalists as powerful "gatekeepers" who decide what is newsworthy according to their own principles (McQuail 2010: 309). Further studies took social aspects into account: gatekeeping as part of a profession, influenced by social norms and values, political and social standards and criteria of production such as time pressure or constrained wordcount. Research on news factors and news values strengthened the perspective that journalists are not isolated actors, but part of a social process that is influenced by journalism routines (McQuail 2010: 311; Pürer 2003: 129). Targeting the public, journalism has always been attributed a strong impact on society and has been discussed in terms of its framing, priming and story-telling potential (Huck-Sanndhu 2009). Recent research assumes that mass media

structures knowledge and opinions of the recipients and define what they perceive as important (Rössler 1997). Thus journalists can be seen as not influencing *what* recipients think, but what they think *about*.

Public Relations Consultants

Discussing the impact of journalists on the public opinion, public relations has become prominent in communication studies. Public relations is persuasive communication following a certain strategy to evoke publicity by both functioning as a source for journalism and targeting stakeholders directly (Fröhlich 2008). Addressing journalism, public relations consultants have been understood as influential actors in the dynamics of public communication. Ever since Bearns (1985) stressed that public relations consultants determine journalism through timing and content, the relationship of influence has been a recurring theme in communication research. More recent studies show a rather balanced relation: the intereffication model by Bentele, Liebert and Seeling (1997) shows a bilateral give and take interrelation (Bentele, Liebert & Seeling 1997). While journalists need the basic information of public relations, public relations benefit by the broad and heterogeneous audience of journalism and its significance. Therefore analysing public communicators, both journalists and public relations consultants should be taken into account.

2.3 Innovation Communication

The young research field innovation communication discusses the notion of these professions in the context of innovation. Introducing the concept of "Innovation Journalism" in 2004, Nordfors sparked the academic debate about how communication might affect innovation innovations or innovation clusters (Nordfors 2004a; Nordfors 2004b; Nordfors & Ventresca 2006; Nordfors & Uskali). His research highlights the leverage of communication in two ways: Journalists start a public discussion and thereby create a public agenda. Furthermore journalists may explain complex innovations and create meaning. Building on Nordfors' research, Zerfass (2005) introduces a broad view on communication, which includes not only journalism but also public relations and interpersonal communication to meet the challenges of innovation clusters. According to Zerfass the complexity of innovation clusters calls for manifold public and bilateral relations driven by communication. Innovation journalists as defined by Nordfors play an important role in facilitating information flow, which allows collaborations and the identification of entrepreneurial opportunity. Innovation public relations consultants aim to systematically plan, implement, and evaluate communication strategies in order to create an understanding of and trust in innovations. Finally innovation-related leadership communicators seek to influence attitudes towards innovations by mediating meaning in asymmetrical, social relations (Zerfass 2005: 11). Pfeffermann (2011) highlights the strategic

perspective on communication by discussing innovation communication as a cross-functional dynamic capability of an innovative company or cluster. As defined by Teece et al. (1997) dynamic capabilities are the firm's capacity to integrate, build and reconfigure internal and external resources and competences to address and shape rapidly changing business environments (Teece, Pisano & Shuen 1997: 516). Pfeffermann shows that communicators can achieve this aim by introducing ideas and concepts, generating and highlighting context-issues, presenting the organization's innovative capability, building up new stakeholder schemata or modifying existing ones (Pfeffermann 2011: 263). Though Pfeffermann's research is only valid for public relations consultants – journalists aim for neutral information – it gives new and valuable insight to the research field of innovation communication.

The preceding sections brought together a diverse body of academic literature on cluster theories and communication studies in order to find interrelations between the two research fields. The classic economic cluster theories by Marshall (1890, 1920), Porter (1990, 1998, 2000) and Krugman (1994, 1998) indicate the importance of communication, which informs but also connects actors inside and outside the cluster. The insights of Network Theory (Granovetter 1937, Burt 1992), Knowledge-Based View (Polanyi 1958, Asheim & Gertler 2006) and Gatekeeper Studies (Lezaric, Longhi & Thomas 2008) highlight the importance of communicators who build connections to gather and share information. Furthermore the young research field innovation communication discussed by Nordfors (2004a, 2004b, 2009), Zerfass (2005) and Pfeffermann (2011) offers valuable insight and strengthens the demand for further research on the communicators in innovation clusters. To analyse the role of communicators in innovation clusters empirically, a conceptual framework has been created and will be introduced in the next section.

3 Conceptual Approach

3.1 Communicator Studies

To investigate the role of communicators, communication studies provide a broad variety of models identifying factors influencing the communicator's role. The *Hierarchy of Influences* approach by Shoemaker and Reese (1991), the *Zwiebelmodell* by Weischenberg (1992), the *Integrative Multi-Level Model* by Esser (1998) and the *Clusters of Influences* approach by Preston (2009) contribute valuable insight to these factors. Though the studies follow different research interests, they show similar patterns and recurring sets of structures, as summarized in table 3.1.

Levels of Influence	Shoemaker & Reese (1991)	Weischenberg (1992)	Esser (1998)	Preston (2009)
Individual Level	Personal aspects such as professional backgrounds and experiences, professional roles and ethics, personal attitudes, values and beliefs and the power within the organization	Demographic Data, social and political opinions, perception of the role, image of recipient, professionalism socialization	Subjective values, political attitudes, work motivation, self-perception, professionalism demographic data	Personal characteristics, background, values of the communicator, definitions and perception of professional roles
Media Routines Level	Routinized and repeated practises, which can be viewed as both enabling and constraining	Origin of information, reference groups, patterns of presentation and news, construction of reality effects and retroactive effects		Taken-for granted institutional practices and norms, that frame and shape how individuals work and function within complex settings
Organizational Level	Routinized and repeated practises, which can be viewed as both enabling and constraining	Economical imperatives, political imperatives, organisational imperatives and technological imperatives	Job profiles and practices, organisational structure, distribution of competences, work processes, control and technology within the media organization	Organizational values, strategic goals, policies and power structures of the company
Political & Economic Level	Institutions in society, government, advertisers, public relations, influential news sources, interest groups, and other media organizations	Societal conditions, historical and legal foundations, communication policy, professional and ethical standards	Economic conditions of the media market, press law, self-control in media, ethic foundation, trade unions and associations, education of journalists	Political and economic culture, distribution of power in society
Culture & Ideology Level	Social interest and the construction of meaning		Freedom of the press media history, perception of the press, journalistic tradition, understanding of objectivity, political culture and socio-political conditions	Norms, values and cultural background

Table 3.1: Structure of Influence Levels

3.2 Conceptual Framework

Based on the insight provided by the established communicator models, the framework classifies four influence levels:

1. *Individual Level*
2. *Organizational Level*
3. *Cluster Level*
4. *Context*

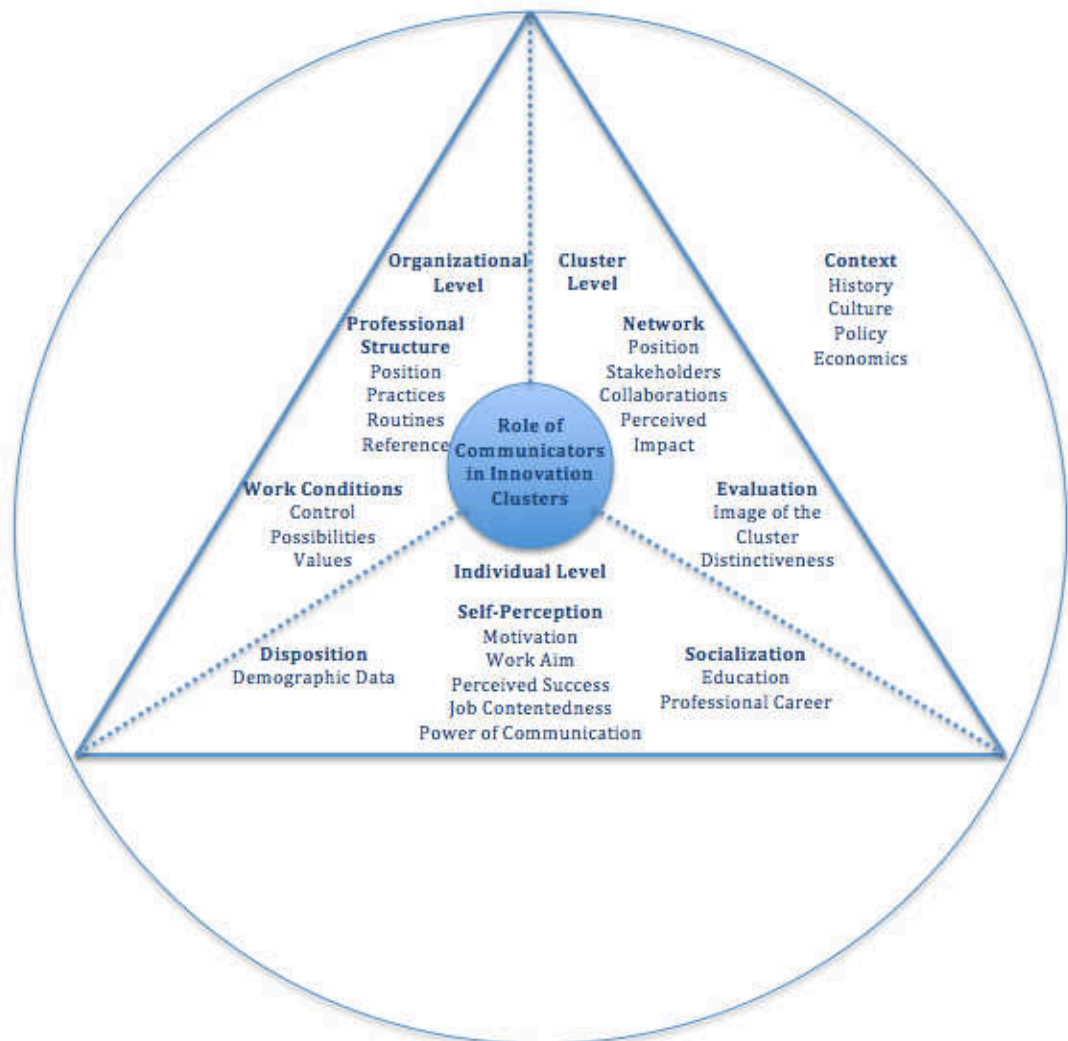


Figure 3.2: The Role of Communicators in Innovation Clusters

The centre of the model shown in Figure 3.2 positions the research interest of the study, the role of communicators in innovation clusters. This role is influenced by the levels evolving around it: The individual influences, the organizational influences and the cluster influences. Graphically these influence levels are structured in a tetrahedron, which visualizes the reciprocal interaction between them. The openness of the levels is highlighted by the dotted lines that separate the levels. This visualization overcomes the problems of hierarchy as the influence levels take place on the same

levels and therefore all interact. This interaction takes place in front of a societal background, which surrounds the influence-levels and the role of the communicator. It indicates that everything takes place in a certain environment that has been established by the historical, cultural, political and economical conditions, which have to be taken into account. Together, the **Individual Level**, the **Organizational Level**, the **Cluster Level** and the **Context** create a valuable framework to analyse the role of communicators in innovation clusters empirically. The framework offers a strong foundation for both the data gathering and data analysing as will be discussed in the following section.

4 Methodology

Case Studies

Analysing the role of communicators in innovation clusters, this research includes two case studies, Munich and Cambridge. These two locations have been chosen as valuable examples to analyse mature innovation clusters in Europe. While young innovation clusters such as London Tech City have been created in recent years over a short span of time, the clusters in Munich and Cambridge evolved over the last 50 years and developed unique dynamics, which characterize the innovation clusters distinctively. Discussing multiple case study designs, Yin (2009) and Eisenhardt (1989) highlight the benefit of contrasting cases to make similarities and differences visible. While the Munich cluster benefited from substantial governmental funding since the 1990s and can therefore be understood as a top-down approach, Cambridge evolved independently from public funding and thus shows a bottom-up approach. Both cases create different realities for the clusters and their members, which is anticipated to influence the role of communicators. A further reason for selecting Munich and Cambridge is the accessibility to both regions. The researcher has studied five years in Munich and four years in Cambridge, which provides her with an in-depth understanding of the two locations.

Research Design

The selection of relevant communicators of both case studies has been based on three steps:

1. A systematic Google research based on a broad variety of the clusters' key names to get an initial access to people engaging in public communication about the cluster.
2. Close Reading of the selected publications to gain further insights to the clusters' communicators.
3. Snowball-methods, based on further recommendations of each interviewee.

Overall the study includes 23 interviews (12 Cambridge and 11 Munich communicators) which have been conducted either face-to-face or by telephone between March and October 2013. The semi-

structured interview guideline is based on the categories deriving from the conceptual framework in figure 3.2. Table 4.1 shows the operationalization of the interview questions. The questions have subsequently been arranged in an order, which supports the natural flow covering four question sections: 1. *Professional career and current status*, 2. *Communication strategies*, 3. *Organizational structure*, 4. *The cluster*.

Level	Category	Influence Factors	Question
Individual Level	Socialization	Education Professional Career	How did you get to this position? Could you give me a brief overview on your professional career?
		Self-Perception	Motivation
		Working Aim	What would you like to give your recipients with your communication?
		Perceived Success	Do you feel you achieve this?
Organizational Level	Organizational Structure	Power of Communication	How important would you say is public communication for a cluster's success?
		Professional Position	Could you tell me more about your professional position?
		Professional Practices	Could you tell me more about your daily work?
	Work Conditions	Professional Routines	Which communication channels do you use to publish you information?
		Professional References	How do you get the ideas for your publications? Which publication do you read about the cluster?
		Control	In communication studies there are often debates about internal and external control on publications, such as organizational regulations or requests by public relations. Do you experience such control in your job?
		Ethical Values	There are many different ethical values regarding "good journalism". Could you think of any specific ethical codes or values that influence your work?
Cluster Level	Network	Position	How do you connect with stakeholders within the innovation cluster? How would you describe the role of your organisation within the cluster?
		Stakeholders	Who are your main recipients? (inside the cluster, outside the cluster)
	Evaluation	Communication	If you think about the public communication within and about the cluster, how would you evaluate it? Could you think of anything that could be improved?
		Impact of Communication	Is there any story that comes into your mind that influenced the cluster strongly?
		Image	Public communication usually leads to a certain image. Would you say that the cluster has a certain image in the public?
	Distinctiveness	And what makes the cluster special to you?	

Table 4.1: Operationalization of the interview questions

5 Findings

This section will present the initial findings of both case studies. First of all, the interviewees will be presented. Then the data will be examined on the basis of the conceptual framework, covering the *Individual Level*, the *Organizational Level* and the *Cluster Level* for each case. Subsequently, inductive themes emerging from the data will be identified. These themes are dependent on the specific *Context* of the clusters, the historical, social, cultural, political and economic influences that form the cluster, the organization and thus the role of communicators and shall be discussed by comparing the cases Munich and Cambridge.

5.1 The Communicators

The selection process described in the methodology chapter identified 23 relevant key communicators in Munich and Cambridge. The following tables give a brief overview on the interviewees.

The Munich Communicators

M1	M1 is a coordinator of the excellence initiative at a university and thus responsible for the university's excellence clusters. He holds a PhD in psychology and focused early in his professional career on quality management of universities and research.
M2	M2 is the head of a research institute's communication department. She holds a PhD in biology.
M3	M3 is an editor of a research institute's magazine. She studied biology and completed a further education degree in journalism.
M4	M4 is a communication consultant of a university. After her biology studies she worked in journalism and public relations agencies. Before starting her current job she was responsible for the public communication of the university's excellence clusters.
M5	M5 is the head of a research institute's communication department. She studied literature and holds a degree in marketing as well. Besides her studies she worked in journalism and public relations.
M6	M6 is the coordinator of the excellence initiative at the university. She studied sociology in Munich and London and holds a PhD from the London School of Economics. After her post-doc at the university of Exeter, she started to work in her current position.
M7	M7 works in a Bavarian Ministry and coordinates the cluster initiative. She holds a degree in economics.
M8	M8 is the coordinator for the excellence initiative of a Bavarian ministry. After his PhD in nutrition science he worked at the university in an academic and also a coordinating position. He then changed to the ministry got promoted to his current position.
M9	M9 is the head of communication of a Science Park. She studied business and concentrated on marketing in her early career. She worked in different marketing agencies before she started her current position.
M10	M 10 is the communication consultant of a network organization. After her degree in Cultural Studies and a traineeship in communication, she worked freelance in different public relations positions. Before she started her current position she worked in the communication department of a non-profit organization.
M11	M 11 is the head of communication of a biotechnology cluster. He holds a PhD in Biology and worked as a freelance journalist before starting his current position in 2007.

Table 5.1: Munich Communicators

The Cambridge Communicators

C1	C1 is a lecturer at the university and holds a PhD in Engineering. Before his current position he worked at a Science Park and the Entrepreneurship Centre. Besides his current position he is a non-executive director at a Science Park and a visiting professor in Japan.
C2	C2 is the editor in chief of a daily print and online newspaper.
C3	C3 is the managing director of a Science Park. He holds a degree in English, worked in investment banking and ran a seed fund before he started his current position in 2008.
C4	C4 wrote a book about the Cambridge cluster. He studied physics in Oxford and worked for automotive companies and entrepreneurial enterprises in Cambridge. Currently he is on the board of Cambridge network organizations and a number of tech companies.
C5	C5 is the head of marketing at a university's commercialization organization. She worked in recruiting and was involved in a project of a Cambridge networking organization. Furthermore she set up the Entrepreneurship Centre with C1 before she started her current position.
C6	C6 is a communication consultant at a university's commercialization organization and a trained journalist. Before starting her current job, she worked as a freelance journalist and as a public relations consultant in the non-profit sector.
C7	C7 is a technology journalist at a daily newspaper, which also publishes a technology magazine. During her career she worked at several newspapers and also wrote books.
C8	C8 is a freelance communication consultant at a Cambridge network organization since its beginnings in 1998. Besides her work she is a freelance communication consultant for further companies.
C9	C9 is a serial entrepreneur and business angel in Cambridge. Recently she set up a platform for the Cambridge cluster to strengthen its network and representation. Besides her projects in Cambridge she is also on the advisory board of Tech City. Furthermore she represents Cambridge to the UK government.
C10	C10 is the editor in chief of an online Technology Blog. He started his career with C2 but launched his current media project in 2011. Furthermore he started to publish a quarterly magazine, which gives an overview of the Blog's news.
C11	C11 holds a PhD in biology and is a serial entrepreneur and business angel, who has been involved in the foundation of influential network organizations and a science centre in Cambridge. Furthermore he is a government advisor and engages in projects to represent and support Cambridge with C9 and C12.
C12	C12 holds a PhD in physics and is a serial entrepreneur and business angel in Cambridge. Like C11 he was involved in the establishment of influential network organizations and worked for successful companies in Cambridge. Currently he is on a number of investee companies' boards and also engages in the public presentation of Cambridge with C9 and C11.

Table 5.2: Cambridge Communicators

5.2 Munich

Individual Level

The *Individual Level* provides insight to the socialization and self-perception of the communicators. The German communicators are characterized by a strong academic background, half of them holding a PhD in biology, psychology and nutrition science (M1, M2, M6, M8, M11). M2, head of communication of a research institute describes the specific science background as "necessity" (M2) to communicate the complex topics of innovation and science. However not only the knowledge background but also the training in communication techniques appears to be an important theme. Also half of the Munich communicators show an education in journalism (M3, M4, M5, M9, M10, M11) Having an education in journalism and communication is highly regarded by the

communicators as it allows them to communicate the scientific innovations professionally. “The point is, a biotechnologist does not know so much about marketing and communication. I revise the press releases for young start-ups, as a press-release is dependent on a good headline and a good lead (...)”, explains the head of communication of a Science Park, “Otherwise you don’t have the chance to get the journalists’ attention. (...)” (M 9). Most of the communicators describe their working aim as the successful positioning of their organization in a regional, national and international context (M1, M3, M4, M5, M6, M9, M10, M11). “Regarding the brand of our research institute, the aim of our communication is to achieve a distinctive positioning which is associated with safeguarding the future of innovation” (M5). A good position of the institution is key to attract crucial attention of potential members, collaborators, but also public funding. Given that most of the relevant institutions are partly publicly funded, it is important to secure the investment. The communicators often refer to the competition for funding however also emphasize the need for justification (M1, M2, M3, M5, M6, M7, M8). “Public communication is always important. A significant part of our money is publicly funded. We are accountable to the public to explain how we spend the money” (M3). Communicators pursue to explain how the innovations may actively influence our lives, as they often seem to abstract and complex to understand. “It is useful science, science that really helps people” (M5). Their ambition to describe the importance of their institution’s activity leads to their motivation, which can be seen as generally very high. Given that half of the communicators come from a commercial communication field (M3, M4, M5, M9, M10), they emphasize their enthusiasm for non-commercial communication. “At a certain point in my life, I decided that I don’t want to work in the commercial communication field anymore, as you are very close to your communication content.” (M10) No matter if the communicators experienced different work situations or decided from the beginning to work in the science field, they show very high work contentment. Working in a Bavarian ministry, the head of division describes his profession as “the best ministry of the government. It is about young, motivated academics, who are committed to work. (...) Research is about self-motivation, achievement orientation, curiosity, willingness to take risks and also dealing with failure and competition. (...) This is beautiful vocabulary and therefore I am very happy here.” (M8)

Organizational Level

The *Organizational Level* sheds light on the professional structure the communicators are involved in which form their work conditions. Analysing the professional positions of the Munich communicators it becomes clear that they are employed in big organizations, there is no self-employed or freelance communicator. Noticeably almost all communicators in Munich work in organizational communication, only M3 writes the magazine of a research institution. Thus coordination and

organizational tasks play an important role. Most of the communicators are positioned in complex, hierarchical institutions, such as big universities, decentralized research institutes or ministries (M1, M2, M3, M4, M5, M6, M7, M8). This becomes visible when talking about their professional practices such as coordination and communication to the inside of their organization. “In my position, internal communication to my division, to other divisions, in such a big administration is extremely important as states of information are states of motivation” (M8). Thus there is a close network inside organizations, which is based on meetings, agreements and getting approvals (M1, M4, M6, M8). What gets published is usually not only the communicator’s decision but influenced by further groups. While communicators of research institutes mention that collaborating companies often set up agreements not to communicate in public about their projects, communicators of universities refer to scientists aiming to get published in full length. “These are situations which require a willingness to compromise on both sides,” explains the communication consultant of a university (M4). A crucial driver for publishing innovation and science is the current agenda in the news. “We are not agenda setters. We have to do agenda surfing. You always have to look which topics are currently working and what we can contribute. For example Fukushima. That offered a wide range of possibilities to publish the whole science of chemistry in the context of storage and energy technology”, explains the head of a research institution’s communication department (M2). News gets published via different channels, organizational magazines (M2, M3, M4, M5, M9), newsletter and press releases (M2, M3, M4, M5, M9, M10, M11), reports (M6, M8), and online communication (M2, M3, M4, M5, M7, M9, M10, M11). These publications are also the main source to stay informed about current activities in the Munich innovation region for the communicators, as Munich does not have a newspaper, magazine or Blog, reporting about the innovation region. Thus public communication always is presented from a specific perspective following specific strategies and aims.

Cluster Level

The *Cluster Level* provides insight to the network of the communicator’s institution and to the evaluation of the region. One of the most striking findings is the fact that communicators don’t perceive to be part of a cluster (M2, M3, M4, M5, M7, M8, M 10). The term “cluster” appears to be used in a very different notion than in English speaking countries. “The confusion derives from the narrow definition of the policies, that set up very concrete funding provisions for clusters”, explains M2, “so you are right referring rather to an “innovation region.” (M2). While the term “cluster” is understood in terms of the State and Federal policies which established the “Cluster Offensive”, “the Cluster Initiative” and the “Excellence Clusters”, the terminology “innovation region” is well understood and accepted. However the communicators still refuse the idea of a common network.

“There is no such thing as the brand “innovation region Munich”. That would make you say “We are Munich”, there is no pressure to unite and compete against somebody as one union. Our situation is too good, we don’t have common enemy that would make us collaborate. There is no incentive,” explains the head of a ministry’s division (M8). Though it becomes clear that there is no shared identity of the Munich innovation region, the communicators refer to diverse collaborations inside the cluster. The combination of university and non-university research institutes establishes a fertile foundation for scientific collaborations. All communicators refers to such a collaboration in different contexts (M1 - M11) Furthermore successful companies are often named as collaborating partners in academic but also industrial terms “BMW, Siemens, they all cooperate” describes the coordinator of a university, “there is a reciprocal fertilization and a strong, close connection” (M1). But the communicators’ collaborations reach beyond Munich’s geographic boundaries. M2 emphasizes that she always has to look for “the best, the most advanced, the most exciting, the most promising” collaboration partner and not for the closest (M2). The national and international outreach refers back to the aim to position Munich successfully in a global context and reflects also the perceived image of Munich. “Munich is very attractive and research intensive. I think that Munich’s companies and research institutions are also perceived like that from an external perspective. However they are not perceived as part of a cluster but on their own as highly innovative and cutting-edge.” The *Cluster Level* shows that Munich is a well-connected location, which does not pursue a shared vision to the inside or a common representation to the outside

5.3 Cambridge

Individual Level

The *Individual Level* shows that the education and the career of Cambridge communicators, is very diverse: While the communicators who work in organizational communication come from different backgrounds like engineering (C1), English (C3), journalism studies (C6), biology (C11) or physics (C12), the communicators working in journalism refer to classic journalistic experiences (C2, C7, C10). Thus the organizational communicators typically describe their careers as “quite varied, and I suspect that is an advantage running an incubator because it is very much a general management position, that is you have to be able to turn your hand on most things” explains the managing director of a science park (C3). The broad careers reveal that many communicators worked in different professional positions within the Cambridge cluster. The journalist C10 refers to having worked with journalist C2, though they are now based in different newspapers. C1 worked with C3 and C5 in different stages of his career in communication and management positions. Furthermore C9, C11 and C12 currently work on a common project to strengthen the public communication of Cambridge. The close relationships in their past or recent careers are a striking feature of the Cambridge

communicators. The strong networks in Cambridge influence the communicators' working aims significantly. For almost all communicators the facilitation of collaborations is one of the main working aims (C1, C2, C3, C5, C6, C8 - C12). A network officer explains that "people work in silos. They tend not to communicate with each other. So here's a notion and I think this is the way the network has always worked, is to cross-fertilise. To make sure that someone in biotech is talking to someone in ICT. So breaking down boundaries, that's the core of the communication" (C8). But not only networking officers, who are actively engaged in the process of linking entities describe their aim as connecting the cluster's members. Also an editor in-chief of daily newspapers emphasizes "by publicising companies and their role (...) we acted as a catalyst for collaboration and also in many instances in technology convergence. (...) we've joined up the companies in the Cambridge community and made them an identifiable cluster" (C2). Such statements highlight the importance, which is attributed to public communication. Communication is seen as the foundation for collaboration, sharing information and knowledge inside and outside the cluster. The head of communication of a university commercialization organization mentions "for Cambridge and the cluster, to get the information out there is key. You have people from all around the world that are coming to Cambridge and some of them are coming in to invest. That's because they are hearing about it, and they are hearing the positive news" (C5).

Organizational Level

The *Organizational Level* provides insight on the professional structure and the work conditions of the Cambridge communicators. The professional positions appear to be very diverse and manifold, only half of the relevant actors are holding a communication job in journalism (C2, C7, C10) or corporate communication (C5, C6, C8), the other half engages in management positions, academic position, entrepreneurship and capital venture funds (C1, C3, C4, C9, C11, C12). Furthermore it is striking that many communicators engage in multiple professional activities (C1, C3, C4, C8, C9, C11, C12). "I have three jobs," explains a university lecturer, "one is, I am a lecturer at the university. And then I am a non-executive director of a science park. And third I am a visiting professor in Japan. Those three things I am paid to do, there are a lot of other things that fit within those three, like running the Enterprise Network, supporting the i-Teams and all that" (M1). The professional activities show that that a significant number of communicators engage in different projects on a entrepreneurial basis. A serial entrepreneur and business angel describes his governmental consulting in terms of Cambridge as "sometimes I go to Number 10. Sometimes I go and talk to Treasury. Sometimes I go and talk to other people about some of these ideas, but there's no programme. There's no plan." (C11). Working on a rather free and flexible basis, the communicators refer to plans, which highlight their capability to react spontaneously to new challenges. Discussing

about more strategic communication for clusters, a serial entrepreneur and capital venture fund investor mentions “I think to do that in Cambridge in particular is a good idea, and I think we’ll do something about it. We’ll start something about it” (C12). New activities and projects are formed spontaneously and based on the diverse insights deriving from their diverse engagements. Though the professional activities seem widespread and manifold, they all pursue the aim to strengthen the communication about Cambridge. “I think and I hope, that just about everything that I do, one way or another, does come together as a reasonably coherent whole. The research into how innovation is conducted in other countries, the US, Israel, Germany, has been very important in giving me ideas about how we can improve what we do here, and you try to understand the bigger picture”, explains a managing director of a science park (C3). Cambridge communicators publish their news via various communication channels, such as newspapers (C2, C8), Blogs (C1, C10), reports (C1, C12), books (C4), magazines (C7, C10), newsletters and press releases (C3, C5, C6, C8) and online communication (C1, C2, C3, C5, C6, C8, C10). Given the broad range of publications, Cambridge media provides not only organizational strategic communication but also journalistic reporting which pursues a rather neutral, descriptive way of communicating.

Cluster Level

Shedding light on the network of the communicators and the evaluation of the region, the *Cluster Level* highlights the close network that characterizes Cambridge. The communicators refer to a lot of manifold collaborations within academia and between academia and industry (C1, C2, C3, C4, C5, C6, C8, C9). The university plays a significant role in these collaborations, as it is the place of cutting-edge science, the place where entrepreneurial start-ups evolve and the place where highly qualified employees come from to join established companies in Cambridge. While the outside perspective on Cambridge is perceived as being all about the university, the inside perspective is focused on the combination of academia and industry (C3). “Before 1960, Cambridge was a market town with a world-famous university. Today it’s a market town, with a world-famous university and a world-famous cluster of technology companies”, summarizes C4. The communicators identify strongly with the idea of the Cambridge cluster and being a part of it. “I think we recognize here that a large part of what we do is dependent on the health of the rest of the cluster,” explains the managing director of a science park, “so we feel a sense of duty to try to make the cluster work properly” (C3). To achieve that aim, the communicators engage in the representation of the cluster. Three of them (C9, C11, C12) mention to meet with the UK government to advice and consult in terms of Cambridge. Though there is no official cluster speaker a serial entrepreneur and business angels explains that “C12, C11 (...) and those lot, they are, or should I say we are, called upon continually to speak about in a Vice Chancellor’s role what’s going on here. The difference is that we do it for free” (C9). The

public communication thus seems to happen through “amateur communicators” as described by a C1 (C1). The visibility of the cluster is perceived as especially important due to the London cluster Tech City, which gained a lot of government and media attention over the last years. Almost all communicators refer to Tech City in the context of funding (C1, C4, C5, C6, C7, C9, C10, C11, C12). According to a serial entrepreneur and investment angel, Tech City allocates £1.5 million to communication (C9). “That’s quite a substantial budget and quite a substantial army of people who are employed to do nothing but promote that as a destination for companies to locate themselves in and do business with. I don’t believe that there is any budget whatsoever donated or devoted to that in Cambridge. It makes me sad because it is so small compared to what Tech City is doing to promote itself” (C9). The strong competition with Tech City seems to strengthen the community in Cambridge. Discussing the strategic communication of Cambridge compared to Tech City, a serial entrepreneur mentions that he “will talk to C9 and C11 and all the other people about this” (C12). Such reactions highlight the close relationships between the Cambridge communicators and their strong engagement to collaborate to strengthen Cambridge. A university lecturer describes the Cambridge community as very helpful and close, “there is something about the sense that we all want to help each other” (C1).

7 Further Insights

So far, the analysis has been based on the deductive categories deriving from the conceptual framework. However, the data also shows inductive themes emerging from the texts, which will be discussed in the following. One emerging theme is the competition a cluster faces. Munich communicators describe a competition within the cluster (M1, M2, M4, M5, M6, M8, M10), Cambridge communicators perceive the competition outside the cluster with London Tech City (C1, C4 - C7, C9, C10, C11, C12). Acting competitively Munich’s communicators don’t pursue a shared vision and common representation but the best stand-alone position for their institution. Identifying an external competitor, Cambridge communicators emphasize the close network inside the cluster, which aims to build a strong union in order to oppose Tech City. One reason for the different ways of competition is rooted in the policies and thus economic situation of the clusters, which highlight the importance of the cluster’s economic context. While the German State and Bavarian Federal government has launched substantial funds to financially support both academic and industrial excellence in the Munich innovation region since the 1990s, the Ministry of David Cameron cut financial support for universities and entrepreneurship. Cambridge communicators therefore face a situation endeavouring for public funding (C1, C2, C3, C5, C6, C8, C9, C11, C12). Furthermore the German State and Bavarian Federal funding initiatives support only single institutions instead of

regions or clusters. Perceiving no financial incentive to collaborate, the Munich communicators focus on the success of their own institution.

The economic situation also highlights a geographical issue evolving around the duality of regional centrality and periphery. The empirical findings show that geography has to be understood not only in an economic but also in a political context. The German system, which focuses on Federal politics, pursues a balanced allocation of financial support. Munich communicators who work in ministries emphasize their aim not to concentrate on Munich, but take the rural periphery into account on equal standards (M7, M8). In England the abolishment of the RDAs reduced the regional focus, and strengthened the capital. The Cambridge communicators therefore face a tension between the capital London, which receives a lot of attention and support, and the periphery, which struggles for equal measures (C1 - C6, C9, C11, C12).

A further important factor appears to be the nature of the clusters' companies. The Munich communicators refer to BMW and Siemens as the most successful companies of the innovation region (M1, M2, M3, M8, M10). BMW and Siemens play an important role on a regional and national basis, as they are closely associated with Munich, but are also known worldwide. In Cambridge the communicators mention that the most successful firm, namely ARM, is a B2B organization, not producing visible products but processors, which are inside the product (C4, C8, C11, C12). While Munich's communicators draw on the prominence of BMW and Siemens to strengthen Munich's profile, Cambridge appears to be rather associated with the university than with the technology cluster. Though there is a common appreciation for the University of Cambridge, communicators tend to mention that there is more about Cambridge than the typically perceived clichés evolving around the ancient colleges (C3).

Discussing these inductive findings, a more practical theme emerges from the data: the question whether the clusters should pursue a centrally coordinated public communication. Resulting from the presented findings, the Munich communicators follow a different aim than the Cambridge communicators. The Munich communicators describe a diverse innovation region, including distinctive and successful organization, which like to stand on their own. A common representation and centralized communication would thus harm the Munich region, as the single entities would lose their uniqueness (M2, M3, M4, M8, M10). The Cambridge communicators in contrast argue that a more coordinated shared voice could help the cluster becoming more visible and prominent, especially in competition with Tech City (C2, C4, C5, C6, C9, C11, C12).

8 Conclusion

This paper provides initial insight to the analysis of the role of communicators in the innovation cluster Munich and Cambridge. To investigate the role of communicators empirically, a conceptual framework has been created which offers a theoretical foundation for the data collection and analysis. Drawing on two case studies, 23 in-depth interviews were conducted. The data was analysed on the basis of deductive categories deriving from the conceptual framework but also on the premise to identify inductive themes emerging from the text.

The two case studies show substantial differences between the roles of communicators. Most significant is the different perception of the cluster itself. Munich communicators neither agree with the idea of a Munich cluster nor consider themselves as a part of it. In contrast, Cambridge communicators show a clear vision of the cluster and identify strongly as a member. This attitude influences their definition of stakeholders and collaboration partners. While Munich communicators emphasize their national and international network, Cambridge is characterized by a strong community. Building on Network Theory (Granovetter 1937, Burt 1992, 2001), the findings show that communicators actively influence where networks are created and how these networks influence the cluster itself. In terms of networking, the Cambridge communicators pursue a shared voice to represent Cambridge, while Munich communicators disapprove a common representation. In terms of the Knowledge-Based-View (Polanyi 19958, Asheim & Gertler 2006), which discusses how information is gathered and shared, the findings raise the question whether the clusters should organize their public communication centrally.

One reason for the differences between the two clusters can be seen in the competition a location faces. While Munich is characterized by an internal competition between the cluster's members, Cambridge communicators identify the London cluster Tech City as main competitor. Whether the competition takes place inside or outside the cluster influences the cluster significantly. The notion of competition refers to Porter's work (1990, 1998) that highlights the significance of competition for the cluster's successful development. Taking the competition's location into account broadens Porter's analysis. Another explanation for the differences between Munich and Cambridge is the effect of centrality and periphery. The German political structure attributes much relevance to the Federal regions, which leads to a balanced allocation of governmental support. The UK government however focuses rather on the capital London than on the periphery, which strengthens the competition among the regions. Where clusters develop successfully is a main interest of Krugman's work (1994, 1998). Defining drivers for agglomeration the allocation of governmental funds among central and peripheral locations can be seen as an influencing factor. Furthermore the nature of the clusters' businesses appears to be a significant feature in the successful development. While Munich's most successful companies, BMW and Siemens, are B2C companies, which are globally well

known to consumers, Cambridge's most successful company ARM is a B2B business, which is not as visible to public consumers. The nature of the clusters' companies refers to the work of Porter (1990, 1998), Krugman (1994, 1998) and Marshall (1890, 1920) who discuss the cluster's environments premises.

The findings provide valuable theoretical and practical contributions. On a theoretical basis, the findings reflect the applicability of the conceptual framework. Inductive themes emerging from the data provide new insight and lead to a reassessment of the framework. The findings also emphasize the importance of the *Context*. The historical, social, political and economic environment provides valuable insight to understand the specific nature of each cluster. Furthermore the findings strengthen the academic literature by adding new specific insight to economic and sociological cluster theories. The findings also provide insight to the concept of the study. Revealing coherent correlations in both case studies, the findings indicate a reciprocal relationship between the role communicators and the state of the cluster. Thus the role of the communicators can be seen as reflection of the cluster's reality. On a practical basis, the findings make difficulties in terms of public communication visible and encourage improvements. Moreover the study gives insight to the question whether the clusters should pursue a centralized communication strategy.

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